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MILITARY HOUSING CONSTRUCTION IN ALASKA

HEARINGS

BEFORE A

SPECIAL SUBCOMMITTEE OF THE COMMITTEE ON EXPENDITURES IN THE EXECUTIVE DEPARTMENTS[1] HOUSE OF REPRESENTATIVES

EIGHTY-SECOND CONGRESS

SECOND SESSION

SEPTEMBER 8, 9, AND 11, 1952

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[1] Name changed to Committee on Government Operations, July 4, 1952.

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MILITARY HOUSING CONSTRUCTION IN ALASKA

(Session of September 8, 1952, held in the conference room, District Engineer Building, Elmendorf Air Force Base, Alaska)

MONDAY, SEPTEMBER 8, 1952

HOUSE OF REPRESENTATIVES,
SPECIAL SUBCOMMITTEE INVESTIGATING
HOUSING CONSTRUCTION IN ALASKA
OF THE COMMITTEE ON EXPENDITURES
IN THE EXECUTIVE DEPARTMENTS,[1]
Anchorage, Alaska.

The hearing was called to order at 9:35 a. m., Monday, September 8, 1952, by Hon. Chet Holifield, chairman of the Special Subcommittee Investigating Military Housing Construction in Alaska.

Present: Representatives Holifield (presiding) and Lanham.

Staff members present: Herbert Roback, staff director of the special subcommittee; Thomas A. Kennedy, general counsel of the House Committee on Government Operations; James H. DeMaras, investigator, General Accounting Office; Carl J. Thoma, investigator, General Accounting Office; and Perley Clogston, engineer, Housing and Home Finance Agency.

Present from the Office of the Chief of Engineers, Washington, D. C.: Lt. Col. Carl H. Bronn.

Present from the Office of the District Engineer, Alaska: Col. L. H. Foote, district engineer; Lt. Col. Carl Y. Farrell, deputy district engineer; Malcolm R. Gilpin, Jr., Chief, Construction Division; and Warren George, Chief, Engineering Division.

Present from the Alaskan Command: Lt. Gen. Wm. E. Kepner, commander in chief, Alaskan Air Command; and Col. John E. Crowley, project officer, J–4.

Mr. HOLIFIELD. Gentlemen, let us proceed.

For the record, I will state that we are assembled here as a special subcommittee of the House Committee on Government Operations. Present with me is Congressman Henderson Lanham, of Georgia, and the assigned staff. Other members of the subcommittee were unable to be present.

The purpose of the subcommittee's inquiry is to examine into certain aspects of military housing construction in Alaska. Behind this inquiry is a twofold concern: First, that the Government's interest is fully protected. This involves financial adjustments on projects where the contractors departed from Government specifications and prescribed standards of construction. Second, that the housing being built for servicemen and their families is sound and livable and repre-

[1] Name changed to Committee on Government Operations, July 4, 1952.

sents the kind of housing which the Congress intended they should have and which is called for in contract plans and specifications.

As background to this inquiry, I will state that more than a year ago, information came into my possession which indicated that construction of certain family housing quarters for military personnel in Alaska was characterized by slipshod methods, inferior materials, and lax supervision on the part of the Army Corps of Engineers, the Government agency responsible for Army and Air Force housing construction. This information raised an immediate question whether the evident failure of the contractors to conform to contract plans and specifications as regards materials and workmanship was met by change orders and adjustments in the contracts to prevent loss to the Government and unwarranted profit-making by the contractors. Accordingly, I turned the information in my possession over to the General Accounting Office for evaluation. The Comptroller General, after study of the matter, sent investigators to Alaska to make a preliminary investigation on the spot. In the meantime, by letter dated August 23, 1951, I advised Gen. Lewis A. Pick, Chief of Engineers, that such an investigation was being made and requested the Corps of Engineers to withhold final acceptance and release of four designated contracts pending a report from the General Accounting Office. My letter to General Pick will be inserted at this point in the record.

HOUSE OF REPRESENTATIVES,
Washington, D. C., August 23, 1951.

Maj. Gen. LEWIS A. PICK,
Chief of Engineers, Department of the Army,
Washington, D. C.

DEAR SIR: Information has been received to the effect that certain irregularities exist in construction in the Anchorage, Alaska, area. This information also indicated that knowledge of the irregularities is possessed by the Corps of Engineers.

Accordingly, it is requested that no final acceptance and release be had of contracts DA-95-507-Eng-61, DA-95-507-Eng-48, DA-95-507-Eng-135, DA-95-507-Eng-193, pending receipt of a full report upon completion of an investigation of this matter currently being conducted at my request by personnel of the General Accounting Office.

I understand that an investigation was recently undertaken by the Corps of Engineers in this area. I would appreciate receiving a copy of your report and advice of action taken.

Sincerely yours,

CHET HOLIFIELD,
Member of Congress.

In a letter of reply dated September 7, 1951, General Pick acknowledged "errors and deficiencies in some of the work" and stated that the contractors responsible for those conditions had been notified to correct them. General Pick also stated that final payments would not be made until corrections were made to the satisfaction of the district engineer. General Pick's reply will be inserted at this point in the record.

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, September 7, 1951.

Hon. CHET HOLIFIELD,
House of Representatives.

DEAR MR. HOLIFIELD: I have your letter of August 23, 1951, advising that information has been received to the effect that certain irregularities exist in connection with construction work which has been undertaken in the vicinity

of Anchorage, Alaska, and that an investigation into that matter is being conducted by the General Accounting Office.

This Office is informed that errors and deficiencies in some of the work have been noted as a result of inspections performed by members of the staff of the district engineer, Alaska district, and that the contractors responsible for those conditions have been notified to correct them. Final payments will not be made until they are corrected to the satisfaction of the district engineer.

Your interest in the work of the Corps of Engineers is appreciated.

Sincerely yours,

LEWIS A. PICK,
Lieutenant General,
Chief of Engineers.

Subsequently the General Accounting Office completed its report which was formally transmitted to Chairman Dawson of the House Committee on Government Operations on April 27, 1952, by the Comptroller General of the United States. In the chairman's judgment, the matter warranted a special subcommittee investigation in Alaska and he designated me as chairman of the subcommittee. The press of legislative business prevented our coming to Alaska until the close of the session. However, on July 10, 1952, I made oral inquiry of General Pick's office as to the status of the construction contracts in question. By letter dated July 28, 1952, Brig. Gen. John R. Hardin, Assistant Chief of Engineers for Military Construction, advised me that all deficiencies in the four designated contracts either had been corrected or offsetting credits had been taken by the Federal Government. The full text of General Hardin's letter will be printed at this point in the record.

JULY 28, 1952.

HON. CHET HOLIFIELD,
House of Representatives.

DEAR MR. HOLIFIELD: Reference is made to your conversation of July 10, 1952, with Mr. Gates of this office, in which you made further inquiry concerning certain contracts in Alaska on which you had requested the Chief of Engineers by letter dated August 23, 1951, to withhold final acceptance and release pending completion of an investigation which you had asked the General Accounting Office to make. I had assumed that the district engineer's report to the General Accounting Office would have been forwarded in turn to you, and for that reason I withheld forwarding you a duplicate of that report. Since the date of your conversation we have obtained further information from the district engineer concerning these contracts.

Contract DA-95-507-eng-48 with Patti-McDonald Construction Co. has been physically completed. All deficiencies have either been corrected or offsetting credits have been taken by the Government. The project has been accepted and the last modification of the contract is now in preparation. The offsetting credits to the Government in this final modification total $30,000, and a claim has been submitted by the contractor as a result of the additional cost to him of changes insisted upon by the Government. A small sum, $100, will be retained when final contract payment is made in order that the contract will remain open until the final settlement of the contractor's claim.

Contracts DA-95-507-eng-135 and -193 are also with Patti-McDonald. The former is now 96 percent complete and the latter 93 percent complete. The deficiencies in both contracts have been corrected, and there are also claims involved in these contracts. The same small sum of $100 will be retained in each case in order that the contracts may be held open until settlement of all claims.

Contract DA-95-507-eng-61 with Boespflug & Birch Construction Co., has been completed and accepted. All deficiencies were corrected or credits taken otherwise and final payment has been made, with the exception of the $100 retained for the same purpose as on the others. This contractor also has filed a claim.

I regret that all of the foregoing details were not immediately available at the time of your telephone call, and I trust that you have not been inconvenienced by the delay.

It is my desire to keep you fully informed in response to your requests concerning the military construction activities of the Corps of Engineers, and I regret that if through any inadvertence or misunderstanding the complete information you requested initially in this case was not furnished promptly as you anticipated. If there is any further information you desire, please do not hesitate to call upon me.

Sincerely yours,

JOHN R. HARDIN,
Brigadier General, U. S. Army,
Assistant Chief of Engineers for Military Construction.

The subcommittee wishes to determine for itself whether in fact all deficiencies have been corrected, as reported by the Washington office of the Corps of Engineers, and how the offsetting credits have been estimated. General Hardin's letter, to which I have just referred, stated that for one designated contract, offsetting credits to the Government in the final modification totaled $60,000. Yet the original estimates of credit due to the Government for this one contract were in excess of $101,000. The estimated credit due the Government on the plumbing waste and vent system alone amounted to $65,739, an amount more than the total credit figure reported by General Hardin.

The report of investigation by the General Accounting Office shows that deviations from contract plans and specifications were brought to the attention of Col. L. E. Seeman, district engineer, in writing on September 18, 1951. By letter dated November 15, 1951, the district engineer acknowledged his receipt of the General Accounting Office memorandum, and, as requested, stated his views and intended actions with respect to corrections of reported deficiencies.

I understand that Colonel Seeman was transferred from this post, along with several others of his staff. The subcommittee may wish to take testimony from him and others in Washington at a later date. Presently, it is our intention to examine witnesses here regarding contract deficiencies reported by the General Accounting Office and the comments of the district engineer as to their possible correction or adjustment. We will proceed item by item as listed in the district engineer's letter of November 15, 1951, to the General Accounting Office, and then the subcommittee may wish to inquire into and develop other related matters.

I should like the record to show that investigators of the General Accounting Office who directed the earlier housing investigations in Alaska are present today, having been assigned to the subcommittee by Comptroller General Lindsay Warren, at the request of Chairman William L. Dawson, in order to assist in these field conferences. Mr. James H. DeMaras and Mr. Carl J. Thoma are here from the General Accounting Office. Also at the request of Chairman Dawson, the Housing and Home Finance Administrator has assigned to us Mr. Perley Clogston, an engineer from the Housing and Home Finance Agency. Mr. Clogston has in the past assisted the House Committee on Appropriations, as well as the Teague subcommittee in its veterans' housing investigations. Mr. Thomas A. Kennedy, general counsel of of the full committee, and Mr. Herbert Roback, staff director of our subcommittee, complete the staff membership.'

We would appreciate it if in making statements or replies, all persons would identify themselves and their organizations for the record.

Before we proceed to the specific subject matter of these hearings, it might be well to have the briefing on Alaska military construction at this point in the record.

STATEMENT OF COL. L. H. FOOTE, DISTRICT ENGINEER, ALASKA

Colonel FOOTE. Mr. Chairman and Judge Lanham, by way of further briefing and orientation following the theater briefings of Saturday morning, I would like to take this advantage and opportunity to explain the organization, the mission, and the operational methods of the Alaska Engineer District. I will give an introductory outline and then I will call respectively on Mr. Warren George and Mr. Malcolm Gilpin, who are the Chiefs of the Engineering Division and the Construction Division of this office, to outline the operation of their respective divisions and the current status of operations within their divisions. We, of course, will welcome questions at any time, sir, from the subcommittee or the subcommittee staff.

The mission of the Alaska Engineer District may be condensed into four principal elements:

First, we are responsible for the design and execution of all military construction for both the Army and the Air Force in the Territory of Alaska, except in the Aleutian Islands area, where that work is handled by agreement with the Navy.

Secondly, the accomplishment of engineering studies, analyses, and estimates, at the request of the respective Army or Air Force Headquarters, for their benefit and as requested by them.

Third, the acquisition and/or disposal of all real-estate matters connected with both Air Force and Army operations throughout the Territory.

And, fourth, the accomplishment of surveys, preparation of reports; the planning, design, and execution of work in accordance with the congressional directives or directives of the Chief of Engineers in connection with the river and harbor and/or flood-control program within the Territory of Alaska.

The organization of the Alaska Engineer District is typical for an engineering district. This district is organized under the Chief of Engineers as an element of the North Pacific Division of the Corps of Engineers, which maintains headquarters in Portland, Oreg. There are three other districts in that Division, Seattle, Portland, and Walla Walla. The Alaska district is staffed with 19 officers and approximately 1,200 Government civilian employees. The military construction activities so largely overshadow the civil-functions activity that only 15 of our approximately 1,200 civilian employees are engaged on civil work at this time. The principal elements of the district organization are indicated on this chart. It is my understanding that the subcommittee is interested primarily in organizational or operational functioning, and in that connection the two Divisions of this organization that are principally involved are the Engineering Division, under Mr. Warren George, and the Construction Division, under Mr. Malcolm Gilpin. I should also like to invite your attention to the field offices which are maintained at Haines, Fort Richardson, Ladd, Eielson, Whittier, Nome, Kenai, the fence program, A. C. & W. [aircraft control and warning] and ACS projects at Big Delta, Alaska. These offices, in the command sense, report directly to me as district engineer.

Insofar as contract administration, field inspection, all the problems of on-the-job control and supervision, they report to the district, principally to the Construction Division, which I hold responsible for the elements of contract administration, field inspection, etc. The Engineering Division, under Mr. George, is the element of this office which handles the planning and design. Upon receipt of directives, all planning, design preparation for contract bidding, etc., is taken care of in the Engineering Division. This chart which is before you, while dated July 1, 1952, has had very few changes. Colonel Farrell has replaced Colonel Dorland as deputy district engineer; Major Dragoo has been assigned as executive officer, and Lt. Col. John K. Addison has been assigned as resident engineer of the Ladd-Eielson area, and Mr. Judson White is now serving there as deputy.

To summarize our method of operation, all design and construction work accomplished by the district is based on specific directives issued to the district by the Office of Chief of Engineers, who in turn bases his directive to us on directives received by him from the Air Force or Army, as the case may be. The typical directive specifies in considerable detail what is to be built, the design characteristics, specific limitations, usually on a floor-space basis, and very definitely and specifically the quantity of funds allocated for that particular building or series of buildings, if there happens to be more than one under that directive. The Engineering Division, upon receipt of the directive, coordinates with the using service to determine that the directive describes what the using service requires. Sometimes it is necessary to secure detailed information as to operational requirements; in a shop building, for instance, and warehouses, the floor loads, items of that nature, as well as the specific location of the construction. Now, the Engineering Division must also obtain from field survey foundation information, etc., all the elements that are necessary to enable us to enter into a lump-sum contract with a responsible architect-engineering firm for the purposes of design. I do not wish to give the impression that every building or structure is completely designed by us; use is made of prior designs, standard designs, but in every case a building must be designed for a specific location.

Mr. HOLIFIELD. Why?

Colonel FOOTE. Your utility connections, your foundations, your——

Mr. HOLIFIELD. You mean a different type of foundation? Isn't it possible to take one of these eight-family units, for instance, and build it at all your different bases?

Colonel FOOTE. It is possible, sir, but the foundation under that building—for instance, north of the range, at Ladd and Eielson, where we encounter the permafrost ground conditions, very frequently we have to thaw and excavate that frozen material, put back into that excavation a substantial depth of non-frost-susceptible material, free-draining material—gravel, in other words—in order to assure that there will be adequate bearing value in the ground under the footings of that building to hold it up.

Mr. HOLIFIELD. That is a minor change in your foundation, but as far as your floor plans——

Colonel FOOTE. The floor plans are the same throughout.

Mr. HOLIFIELD. And all the rest of the construction is the same?

Colonel FOOTE. Those elements of the design are taken intact from one job to another.

Mr. HOLIFIELD. Who designs that building? Do Government engineers design that, or outside architects?

Colonel FOOTE. Outside architects.

Mr. HOLIFIELD. And those outside architects are paid, I suppose, according to standards set by their national organization, or whatever the percentage is, on every construction.

Colonel FOOTE. No, sir; it is not a straight percentage proposition. I would like for Mr. George to outline in greater detail the formula by which the architects' and engineers' fees are determined.

Mr. GEORGE. I can answer the question if I can break in. In case of repetitive structure, such as a house or barracks or warehouse, he is paid for one design, based on the AIA [American Institute of Architects], or a curve award similar to the American Institute of Architects. The Government then owns those plans and can make repetitive use of same.

Mr. HOLIFIELD. Without paying additional architect fees?

Mr. GEORGE. Absolutely. We never pay an additional fee unless there is a fundamental change in the design which requires a new design. Postwar, we have had more than one style of house, caused by the changing economy of the country; so, we have had several designs of houses, to give an illustration, but we never pay an architect more than once for a design.

Mr. HOLIFIELD. Now, if you have 200 houses, 200 of these 8-family units, for instance, how is your architectural fee paid? Is it all paid on the basis of construction cost of the whole project, or on unit construction cost?

Mr. GEORGE. On one eight-family building.

Mr. HOLIFIELD. One eight-family type of building.

Colonel FOOTE. The architect-engineer provides the design, the drawings, and the technical sections of the specifications covering the construction; then administrative specifications are prepared in this office; the bidding documents are prepared in this office, and the call is issued for bids based on these plans and specifications. All construction work in the Alaska district is handled on a lump-sum contract basis after competitive bidding. When a contract has been awarded, the principal responsibility then passes from the Engineering Division of this office to the Construction Division of this office for the accomplishment of the work in the field and administration of the contract. These two Divisions do not operate independently. Of necessity, there is a great deal of coordination between them throughout the life of the project, and also coordination with contract terminations—fiscal, legal, and all the service elements of the organization.

So that you may fully appreciate the scope of operations of the Alaska district—this map [indicating] is not well situated—at this time we have active military construction under way at Haines, Northway, Tok Junction, Johnson River, Big Delta, Harding Lake, Eielson Air Force Base, and Ladd Air Force Base, at Glenn Allen and Sheep Mountain, at Fort Richardson, and, of course, Elmendorf Air Force Base, at Whittier Port, where you arrived in the Territory, at Kenai, and then the classified installations. [Record closed. Record opened.] The problems of coordination and control arising from transportation and communication difficulties with that spread of work, I believe, are obvious. Of course, the great volume of the work is concentrated at

Ladd and Eielson in the Fairbanks area, and Elmendorf and Fort Richardson in this area.

Now, I would like to outline briefly the scope of the operation at this time. Any attempt to evaluate the total military construction program of Alaska becomes speculative immediately, because the ultimate requirements are not susceptible of being firmly established. The missions, the responsibilities, the conditions of the using service momentarily are constantly being brought up to date; so, we can never say precisely where the further limit of this program is. I think you may gain a good general understanding from the fact that work presently accomplished and presently programed through the fiscal-year-1953 program amounts to approximately $750,000,000. As of the most recent information I have—which, again, I qualify as being speculative—I believe it is approximately accurate to say there remains in the neighborhood of 400 million dollars' worth of work to be programed. So, we are speaking of a construction program, post-World War II, somewhat in excess of the amount of $1,000,000,000.

Those charts over there further illustrate the magnitude of the program and the progress made with the program. This chart shows the percent of design and construction completed for the 1948, 1949, 1950, 1951, 1952 programs. The 1953 program has not yet firmed up to the point of being placed on the chart. The hatched areas show the percentage of design completed, the red overlaid areas show for each of those respective programs the construction accomplished through July of this year. The design value of a program and the construction value of a program rarely coincide; there are changes throughout the life of the program, elimination of certain items or changes of items that normally result in the design value exceeding the actual construction value contained in one program. Those designs are not wasted; they are picked up in ensuing years' programs. Over here you see where they have remained the same for 1948, where the program is noted at $31,000,000, for design and construction. The classified program, then, the A. C. & W. (aircraft control and warning) program, also is indicated in this chart. You will note that except for the fiscal year 1952 program we are well along with construction, it is not complete, but between 80- and 90-odd percent complete. The design work for the 1952 program is approximately 90 percent complete. But we are just now and in very recent months placing the 1952 program under contract, and at this time only between 10 and 20 percent of that program is completed in the case of construction. That, of course, is due to delay in the receipt of the necessary directives which was occasioned by the delay at the Washington level, which made it impossible to get the directives out to us. Unfortunately the 1953 program is coming out very promptly, so we now have a coincidence of 1952 and 1953 programs. I say "unfortunately." We always appreciate getting funds and directives early, but this reflects in almost double the current workload on this program.

Was there any question on this chart? [Referring next to chart on Alaska military construction program.]

This chart shows in the broken lines the progress of design and in the solid lines the progress of construction. Now actually there is an inverse plotting. We start a design curve on this chart with a design to be accomplished, so at any given point along that curve the value indicated is the value of the design remaining to be accomplished.

The attempt is made to show, for instance, with the 1950 program, your design starting back in August of 1949, your first construction under that program starting in July 1950, a lag or lead time, if you please, of almost a year. The reverse progress indicated on this design curve is due to the supplemental appropriations made in that year which added to our design load. In 1951 we were able to get a more rapid start. You will notice the first construction was in January of 1951, and the first design in approximately August or September of 1950. But again, between the bulk of your design accomplishment and the bulk of your construction accomplishment there is a year or more. The situation with the 1952 program is quite apparent. We got an early start on design and a late start on construction, so that we have considerable aggravation of the normal, say, 1 year lead time between design and construction. For 1953, and of course we are crystal balling on this element on the chart here, but our predictions and forecasts are that our 1953 design will be out before the first of July of next year and we will have a substantial start on 1953 construction by the first of January of next year. But you can see, it is very evident here in the construction season of 1953, your coincidence of the principal construction load of those two periods.

Is there any question on this chart?

This cumulative chart indicates the values to date of the program, starting with 1948 and with the 1953 program recently added to it. As of this time, slightly over $300 million worth of work has been accomplished, which you can see is roughly one-third of the total postwar program. As of this time we are approaching $600 million worth of work in design, slightly over half. Any question on this? [Referring next to chart on estimated and actual manpower requirements.]

Manpower for the job is, of course, a problem. It is very graphically shown here what has happened in 1952 when we weren't able to get the 1952 work started in time to build up to the typical peak in the 1952 construction season. Our 1952 on-the-job construction contractors employment peak was in June, where normally an August or September peak is to be expected. Now, for the next year, with the coincidence of programs, we anticipate right at the peak we will require approximately 12,000 contractors employees, that is the contractors will require 12,000. Whether they will get them after this situation this year, coupled with the drop in general construction in the territory—that is, there is less, practically no railroad work this year, a decreased amount of highway work, a decreased amount of general building in the territory. We ourselves have had some decrease in our demand. It has resulted in a surplus in many crafts and trades in the Anchorage and Fairbanks areas. The effect will be most unfortunate next year, because those people, having had a sad experience in coming to Alaska, will not want to take on another one.

I would like to add just a few general comments, sir, about our activities, things that we do that are not normal in the military construction business, not usually encountered. The Government operates, the Alaska District operates at four major bases construction camps for the housing and messing of construction contractors and employees. Those four camps are operated under a single cost-plus-fixed-fee type of contract, which is the only contract of this type we have in the district. The camps are located at Ladd, Eielson, Fort Richardson-Elmendorf, and Whittier. This camp at North Camp is

a supplemental camp. The graph lines show the total, and again the situation I mentioned of total employment peaking in June is reflected in camp peak curves, except at Whittier, where they are somewhat overloaded at present.

Mr. HOLIFIELD. Is it the Government's responsibility to feed and house those construction workers?

Colonel FOOTE. We have assumed that responsibility by operating these camps at those places only. That was done because the physical facilities for that operation existed, and the most effective way to do it so it would be available to all contractors was for the Government to operate it.

Mr. HOLIFIELD. What is the general rate charged a man on construction work for subsistence?

Colonel FOOTE. It is $5.75 a day for food and lodging. Single meals are $1.75.

Mr. HOLIFIELD. May I ask if those camps are operated by servicemen or with civilians?

Colonel FOOTE. They are operated with civilians, sir, under this cost-plus-fixed-fee contract which the district has entered into with Universal Food Service, Inc.

Mr. HOLIFIELD. Checks are run then by the concessionnaire. Universal Food Service, is that a Government concessionaire, or a privately owned?

Colonel FOOTE. It is a privately owned organization, privately operated. We reimburse the cost of operation, that is, the Government reimburses and pays that organization a small fee for its management and operation of these facilities. It is the typical fee.

Mr. HOLIFIELD. You furnish all food and equipment for them to use?

Colonel FOOTE. Yes, sir. We attempt to provide all the subsistence supplies through Quartermaster channels.

Mr. HOLIFIELD. What control do you have over the costs of operation, if it is a cost-plus-fixed-fee?

Colonel FOOTE. We have very close control. We have to audit prior to reimbursement every expenditure that is made, that they have made. Not only do we have our own audit staff, but the Army has an audit staff set up across the street and it audits right behind our auditors. We do not obtain all our supplies through normal military supply channels. We attempt to, but having access to other sources, the Quartermaster very properly, if there is a shortage, transmits the shortage to an agency that has the ability to go some place else, and we therefore necessarily do make certain procurement in Seattle direct for the operation of these messes, but that is held to a minimum.

Mr. ROBACK. Does that operation result in a net outlay by the Government, or is it self-sustaining?

Colonel FOOTE. It is self-sustaining. It fluctuates. I say self-sustaining. We have to have working capital. For instance, in the winter months when operation drops very low, our unit cost per man goes very high. There may be from time to time certain support from construction funds that go into that camp operation. We have to go back and analyze it over a period of years, but I think I can say it is essentially self-supporting on this $5.75 day rate.

Mr. KENNEDY. In letting the bids on those contracts, was there any evidence in them to the effect you were going to undertake this responsibility of messing?

Colonel FOOTE. Oh, yes.

Mr. KENNEDY. It was not assumed only after you had already——

Colonel FOOTE. No. These camps have been in operation now I guess continuously since their inception in about 1946, and that is stated right in your contract.

Mr. HOLIFIELD. Is it the contractor's obligation to procure labor, or does the Government procure it through recruiting?

Colonel FOOTE. It is the contractor's responsibility.

Mr. HOLIFIELD. On the transportation cost, who assumes that?

Colonel FOOTE. The contractor.

Mr. ROBACK. I wonder if it would be appropriate at this time for Colonel Foote to indicate what items are supplied by the Government in regard to housing construction which are not figured in the unit costs of housing given. I have in mind such things as dry cement, for example.

Mr. HOLIFIELD. Machinery, grading equipment.

Colonel FOOTE. I can outline that, and Mr. Gilpin can give further details. Essentially the principal item the Government furnishes at this time that goes into housing construction at all our four major bases is concrete. We maintain at each one of these bases a central concrete batching and mixing plant and we deliver to each construction contractor, any construction contractor, the concrete required for his work. These concrete batching and mixing plants are operated under separate contracts for concrete supply.

Mr. HOLIFIELD. In the residential construction, that would be sidewalks, steps, basement, and foundation?

Colonel FOOTE. Right, sir.

Mr. HOLIFIELD. And in these large barracks, concrete block barracks, does it mean you furnish the concrete blocks?

Colonel FOOTE. No, sir, only the ready-mix concrete. The blocks are fabricated in block plants in the area, but we furnish only wet concrete that goes into forms on the job. We have in the past furnished dry cement. Incidentally, we buy the cement for this central concrete operation, we procure that directly. We have in the past furnished dry cement where it was required for odds and ends of work around each job, but I believe I am correct that we are out of the cement-furnishing business.

Mr. GEORGE. Yes, sir, except the concrete.

Colonel FOOTE. Except for the mixed concrete. We do not furnish dry cement. Any contractor, if he needs a few sacks of dry cement, can go get it.

Mr. HOLIFIELD. For minor work?

Colonel FOOTE. Yes, sir. And at stations other than the four I mentioned, the supply of concrete is the contractor's responsibility.

Mr. HOLIFIELD. I assume there is a definite reason for your furnishing cement and not furnishing lumber or other building supplies.

Colonel FOOTE. Yes, sir, concrete control. To obtain the specified quality of concrete requires continuous close inspection. Now, if all the concrete is mixed in a central plant under our control, we design the mixes and we specify how much cement, sand, gravel, and water goes into that mix, we have it very closely controlled. If we have 37 different contractors scattered around the base, each one with a concrete mixer, our problem is tremendously magnified.

Lieutenant Colonel BRONN. Shall I make a suggestion, to round out the answer to Mr. Roback's question? In the final cost reporting by unit, all costs are included. Thus, wherever concrete is used, it goes into the ultimate cost, in addition to the contract cost which you see on the bid.

Colonel FOOTE. Other than concrete, and of course in living quarters the Government does furnish the ranges and refrigerators. Other than those items at this time there is very little Government furnished material that goes into any of these projects. We attempt to utilize and have in the past utilized a great deal of the surplus construction materials in the Alaska General Depot Engineering Supply. And in fact, immediately following World War II—I wish you would interrupt me, Mr. George, if I make any misstatements—immediately following World War II, in anticipation of the major permanent construction program in Alaska, vast quantities of construction material and construction equipment were assembled from throughout the Pacific area and brought to Anchorage and some on to Fairbanks for utilization in that program, in face of the shortage of equipment and materials in the United States proper. That material, insofar as it has been economical to do so, has been worked into construction contracts. We have reached the point where the material remaining, the quality has been impaired by long exposure, or there are broken lots which require extensive repair, and it has reached the point where it costs more to use it than to have the contractor procure new material, so that that program has ended.

Now, on quantity of construction equipment, we still have a large quantity within the district of Government-owned construction equipment which we currently make available to the contractor on a straight rental basis at his request. At one time we furnished and guaranteed it to the contractor. This was in the early days when we were encouraging new contractors to come into the area, to get greater competition we actually had to, at the time of advertising for bids, promise to furnish the successful bidder on that job certain listed construction equipment. Of course that poses administrative problems, what presumably is serviceable, what is operatable.

Mr. HOLIFIELD. But that equipment would be available to any bidding contractor?

Colonel FOOTE. Right, sir, to all.

Mr. HOLIFIELD. And are charges made to those contractors, a nominal charge rather than a regular commercial charge?

Colonel FOOTE. Mr. Gilpin, will you outline the basis of equipment rental charges today?

STATEMENT OF MALCOLM R. GILPIN, JR., CHIEF, CONSTRUCTION DIVISION, OFFICE OF THE DISTRICT ENGINEER, ALASKA

Mr. GILPIN. The current procedure is, the equipment is made available to the contractors, they take it on a where is-as is basis, they look at it and if it needs repair they do it. They are charged a commercial rate and are made an allowance for any repairs. Rentals are based on

AGC (Associated General Contractors) rates, plus an Alaska differential which increases the rates over what they are in the States.

Mr. HOLIFIELD. Of course he has to take that into consideration in making his bid, so in effect he passes that right back to the Government?

Mr. GILPIN. Depending on how he figures his bid initially. In other words, he has to have certain equipment to be able to do his job and he must figure in cost of rental of equipment in his bid, therefore he has it in there.

Colonel FOOTE. The Government-owned construction equipment has been used through so many seasons now that our equipment rental business, if I can put it that way, has become rather unsatisfactory. Up until this year we have been able to show a rather substantial advantage in owning this equipment and leasing it and making it available to the contractor, but I believe we have about reached the point of diminishing returns in the economy of equipment ownership, and our present thinking is, with a few possible exceptions, we will endeavor by the end of next construction season to be out of the renting business. More and more contractors are bringing their own equipment, new, reliable equipment, into the area and the demand for our equipment, I am positive, will continue to drop off. The loss of equipment time in Alaska due to Associated labor charges becomes a very heavy penalty for construction men.

I would like to mention just briefly our recent bidding experience, I believe this is true for the past 2 years, at least, has shown very satisfactory competition on construction bids. We have received usually seven, ten, and sometimes more bids on any offering. Bids are usually competitive, they show a desire to get the work, they are not just the complimentary type of bid sometimes received. The prices reflected have been very satisfactory in comparison with the Government fair-cost estimate of the work, which is the yardstick we must apply. We are currently placing in the field, actually accomplishing permanent construction, at a rate of $150 million for this construction season. Last year it was approximately $139 million. We feel that with the existing resources of the district and of the construction industry within the Territory that we could conservatively place, say, $200 million worth of construction annually.

Sir, if agreeable with you, I would like to call on Mr. George to outline the operations of the Engineering Division. Are there any further questions?

Mr. HOLIFIELD. Any further questions?

Mr. ROBACK. Several years ago the Defense Housing Commission, which was established by the Secretary of Defense, made a survey in Alaska and among other things recommended that the Government furnish materials in the housing construction. That practice evidently was discontinued, and I wonder if we could have some idea of the problems encountered.

Colonel FOOTE. I believe that that matter was pretty well resolved on one instance of bidding. Correction, that was Government transportation, not Government-furnished material. Mr. George, will you answer that?

Mr. GEORGE. When lump-sum construction work of the district got under way (approximately 1948), the use of the stockpile of material brought in originally (1946) to allow the work then under way to proceed (fixed-fee type of operation) it soon was very clearly demonstrated to this office that it would be preferable to let the lump-sum contractor buy his own material for the job. We were constantly in the throes of argument with him, that the material that we furnished was not what he bid on and he was therefore delayed, and entitled to extra claims. And so, based on that experience, while it might appear to have real merit, the furnishing of material by the Government on a lump-sum-bidding basis type of contract by the Government to a contractor is not attractive in an overseas area such as this. We have been through the experience, and it just does not work very well. Procurement of materials and getting them to Alaska at the time when they are needed and in the condition in which they are supposed to be, poses many problems of warehousing, heavy flow lines of supply to the contractor building, and causes many, many problems in execution of the contract.

Colonel FOOTE. Accountability, sir, is a major problem that is of course necessary in the case of Government-furnished material of any sort; complete and detailed property accounts must be maintained and charges to the various projects, material charges, accurately shown. Those accounts have to be audited, and of course prior to completion of the contract they have to be audited by Army audit agencies. We do our own auditing, which requires that we get into a tremendous administrative problem in the providing of Government-furnished materials or any item whatever to contractors.

Mr. HOLIFIELD. The red tape of accountability for small issues of material is a factor, is it?

Colonel FOOTE. Very definitely, sir, that administrative cost becomes severe.

Mr. ROBACK. On the other side, Mr. Chairman, it creates special problems of inspection and supervision where a contractor may get materials below Government specifications.

Colonel FOOTE. I think I can speak the unanimous view of my staff here when I say we would much rather cope with the latter problem; we would much rather handle it.

Colonel FOOTE. Mr. George.

STATEMENT OF WARREN GEORGE, CHIEF, ENGINEERING DIVISION, OFFICE OF THE DISTRICT ENGINEER, ALASKA

Mr. GEORGE. Chairman Holifield, Judge Lanham, General Kepner, I won't go into too great detail in explaining the engineering functions of the district. I will be glad to answer any questions. Colonel Foote has already somewhat briefed you on the subject. I will attempt to explain it by example to where it becomes clear as to how we function.

I would like first, however, to go back, Colonel Foote, if I might, and give the Board an idea of the material and equipment brought in in relationship to the total scope of the program. This material

was salvaged material from the war era, it was picked up at the posts or bases to which it was assembled at the end of the war. Some of it was in new (box condition), some of it was used and yarded and warehoused, not in new condition and in various stages of need of repair. The total estimated value of that material was in the order of $20 million.

Mr. DEMARAS. That is estimated surplus value, or existing value?

Mr. GEORGE. Existing value to the job; that is right. Now, that figure is an average figure. There have been a number of estimates made, but I want to get the general picture to you so that it will mean I think a little more to you. In equipment there was about $25 million worth brought in a great deal of which had been used and had to be repaired when it got here. To show the economy to the Government, I believe the costs of bringing that material and equipment here and fixing it, could be stated as somewhere in the order of $7 to $9 million. Now by comparison with the estimated cost of the construction program as we now find it, in the order of $300 to $500 million, it should be clear that the quantities are not large. The cream has been taken off, the practical use of the equipment is gone.

Postwar it was most difficult to buy a tractor, you couldn't buy it except at an inflated price. The lumber market was a black market, and the same situation existed as far as steel and a great many other articles, and this procurement at that time was a means to getting the original job started, it was only wisdom to do it. It is now wisdom to say that by study its continued use has reached the point of diminishing returns. The property has been turned over to depot units who can use it in their repair and utilization activities. Very shortly the equipment will fall in the same category. I think that this further information might be helpful.

Now to return to the district organization, my job with the Alaska district pertains primarily to the planning, the budgetary work, the design, and the preparation of the various jobs for bid. After the construction has been awarded, engineering gets into many items of changes that are required on the job for the reason of conditions such as the contractor cannot buy the equipment specified and therefore a change must be made, or there is a problem encountered on the job that requires substitutions. But we are mainly concerned with the planning work and the design work. We function in an orthodox fashion common to the organization of a Corps of Engineers district. It is not, however, different from operation of a private consulting firm. I have not been too long with the Government, I have spent most of my time with private concerns, and the operation follows the same pattern as a private outfit.

We have a planning and reports branch which deals with this predesign work, the district has members on the base and post planning boards which are set up to get a general plan of development of the bases so that work is accomplished according to a plan, and not just skip all over the lot with resulting confusion. We now have well-developed master plans and have had them since early in the program. There was nothing of this kind in existence when the district was formed. In general, the wartime construction on the existing bases were temporary structures (Quonset type), a small amount of permanent construction work existed at Elmendorf Air Force Base. Some also at Ladd Field, which was known then as a

cold-weather station. The wartime construction was more concentrated in the chain, that being where the threat was at the time.

The district representatives function on the planning boards in rendering technical advice only. The boards are under the jurisdiction and control of the various base commands. Much of the planning eventually gets into construction projects. These planning groups of the command form their yearly budgets, which they present to and defend before the congressional committees involved. Our only activity in that is that, generally we check the estimate of cost to insure that when the money has been voted by Congress we can build the facility with funds provided.

Once the money has been voted by Congress we then, as Colonel Foote has stated, receive a directive. Sometimes the directives are inclusive for several projects, sometimes they are for individual jobs. And to give you an illustration, we are now just getting the directives in the last few weeks on the Army-Air Force work for the 1953 fiscal year program.

Lieutenant Colonel BRONN. 1953.

Mr. GEORGE. That is right. The items covered presently by directive in hand or directives which we still expect to get, number 167 different jobs. By understandings existing with the Congress—I believe I make this statement properly, certainly with the Bureau of the Budget—the Armed Forces are obliged to make every attempt to obligate these funds by April 1 next year. In getting a job such as this started scheduling is important—I have copies of these, which you might look at.

Mr. HOLIFIELD. We will have a short recess.

(The meeting was recessed at 10:30 a. m., and reopened at 10:40 a. m.)

Mr. GEORGE. I have passed out these schedule sheets more as an example of our approach to the work. Two are headed "Status of anticipated actions 1953 fiscal year—Army and Air Force program, Alaska." They are bound together, one being for the Army, the other the Air Force program, and they show the items under the various stations in the current proposed 1953 programs. Repeating, we are now getting the directives for this work, they are coming through from Washington, most of them are here. We are obliged to make every attempt to get the funds committed, obligated under contract, by April 1. Now, that is entirely possible of accomplishment on the average job, but it is only possible to do it on a program of this size if everything goes well and even then, it is a shorter design period than we would like to have. The actual job of design for the most part is done, as we have stated, by architectural engineering groups who are located generally in the Northwest and west coast areas. The coordination of that design with the various groups involved becomes quite a job on such a schedule, bearing in mind that it requires about a week to make the award after the bids are received, to insure proper analysis of the bid. There should be allowed a minimum time of 30 days after the invitations are sent out so the contractor can secure proper figures and the Government get the benefit of the proper bidding in the time, about 2 weeks to reproduce the hundreds of sets of plans and specifications that are necessary, then allowing total review time for the design of approximately 6 weeks, final and preliminary, and giving the architect-engineer a minimum of 90 days, 30 of which

are for his preliminary findings of fact. Then back up again, and allow for the time required to negotiate with that architect. When you add those all up, and starting a job as of now, it is a nip-and-tuck proposition to be able to put the whole program under award by April 1.

The designs involved cover every conceivable item of engineering variety, from a power plant, hospital, all types of warehouses, refrigeration plants, docks, pipelines, high-pressure refueling systems for planes, utilities of all types and varieties. Coupled with this design is the necessity of going to each place where a job is to be built and securing accurate data on surveys, foundation conditions, and so forth. We, in Alaska, are in a territory that does not have the built-up, established engineering data that normally exists stateside. We are accumulating it as a result of our 6 years of experience here, but there is a great deal that we do not know, does not exist, and we must be very careful to get it. It saves money for the Government to do so. Likewise, in the way of surveying, surveys do not exist here such as you have in the States, your basic data isn't here, and that has to be accomplished.

We furnish the architect-engineer with definite plans. He knows, if it is a petroleum fueling facility, how many gallons are required, what the pumping rate will be, and how systems will be operated, and there is a great deal of latitude in the thinking on things of that nature. He is able, with that material furnished him by district, to get fairly promptly into his design.

I want to mention the following facts, not in any sense of excuse, because I don't think there is any necessity for that, but to give you another element of the difficulty of working in Alaska which may not be understood. It is most difficult to get people, competent people, to come to Alaska and stay here, they don't want to, and as far as engineering personnel is concerned, we cannot give them the inducement money-wise that they can get anywhere in the States or elsewhere in the world, where they have more attractive conditions. As a result of that, we find ourselves with a turn-over rate of 5 to 6 percent a month, or in a year's time from 60 to 72 percent, which means when you are running an organization that you are constantly training personnel, and it is a most difficult operation.

Mr. HOLIFIELD. How much of that turn-over is due to the ending of your seasonal building period?

Mr. GEORGE. None as far as engineering is concerned. We have the work to continue on.

It is a fact that housing conditions are not good here, there has never been sufficient housing, it is costly to live here, the standards of pay are identical with the States, plus a 25-percent differential which, because that cost-of-living allowance is taxable, about a third of it is immediately withheld, and the comparative cost of living here, based on average stateside, I think I am giving you an accurate figure, approaches 50 to 60 percent. You are living in a country that doesn't have the cultural advantages, the schools, the church groups, organizational facilities, that people like. So we are operating under a most difficult position. I want to give you that viewpoint because I think it is important, it is certainly important to me in my running of my job. It is something you don't even have to worry about in the States generally, in an organization there you might lost one or two men a

year, but you don't lose up to that percentage. Excuse the sidelight, but I think it is important that you gentlemen know it. We do have some good people here, they are as good as you can find anywhere, and they are trying to get the job done in the best interests of the Government. Why some of them stay is beyond my comprehension.

Getting back to the main subject, when a job is defined and when it is clear as to what it will be, we select three firms that we think can best do that job, and we recommend them to higher authority. Generally our recommendations hold and we then negotiate with No. 1, and negotiations are thorough, they are difficult, there is a lot of coordination, orientation, explanation to do to be sure the job is understood, to be sure the conditions are understood, because we are leading to a lump-sum contract, and we finally either arrive at a price in line with propriety, or we deal with the second man.

Mr. HOLIFIELD. Let me understand you there. Your bids have been advertised?

Colonel FOOTE. He is speaking of design.

Mr. HOLIFIELD. You are speaking of design?

Mr. GEORGE. Yes. I may be giving you too much, but I want you to have a clear picture of how this goes on. We can't hope to do this work with our own people. We could handle a dozen concurrent jobs in our shop, but when we have a hundred concurrent AE (architect engineer) designs going on, the people we have in our shop are fully utilized to control those firms, because those firms have possibly six or eight hundred engineers, draftsmen, which must be coordinated, controlled, checked. It is a difficult operation.

But getting back to the negotiations, we are bound by very strict regulations that are laid down at the Washington level, negotiations are audited and inspected, and even if there was not the desire to do a job, there would be no opportunity to get out of line. The contract then is awarded and the AE goes to work. At the preliminary period of his design there is a review held in which representatives of the command involved are present, this office and these of the higher echelons. Normally those plans are reviewed and it is made dead certain that this is what we want, this is what we can build that job for with the funds voted by Congress, and the AE is given a go-ahead order for his working drawings, which is the costly phase of his work, it is where he puts all his draftsmen to work and makes finished drawings and finished specifications. At the end of that period there is another chance for review of his work. That review sometimes takes the method of a conference type. We do not prefer that type and only resort to it where time is of the essence. The type that we like to do is to get those plans, put them in our shop and check them. When we have checked them and when we have received approval or a similar check at a higher echelon, which currently is accomplished at the division office, we then correlate all changes that must be made, and the architect makes those changes. The architect-engineer writes what is known as technical specifications, he defines what material will go into the job, what grade, what specification. Then District writes what is known as the parts 1, 2, and 3 specifications, special general conditions and bid papers.

When that has all been accomplished, we then hold a board meeting in the district office on most every job, attended not only by engineering groups, but the supply, construction, residency, and all people in-

volved in the various aspects of the job. Those plans and specifications are at this board looked at from the standpoint of general coverage. Is the time stated for construction appropriate? Should there be an alternate in there to see whether we have allowed too short a time and can we get a better bid if it is longer? Are all the latest regulation dealing with control of materials incorporated?—and they change all the time. Once that board is held, reproduction of plans and specifications proceeds, and the bid papers go out. When the bids come in they are scrutinized again by a group in which engineering is involved if there is an alternate bid, contractors' alternates, or if there are engineering features involved. Once the analysis has been made and the recommendation of the district engineer has gone forward and been concurred with and the award established, engineering tends to drop out of the picture.

That is a short and very brief analysis of how actually we work. We have as a working force about 300 people. Fifty of these people are concentrated in Seattle, they are in close control of the operations in the States, they report to us, they can answer many questions there, they can save travel by being there, but the fact that we have a split office does require a considerable amount of administrative control that would not be the case if work took the normal pattern.

Mr. HOLIFIELD. After this contract is let and the contractor goes to work on the job, let us say that some change in regulations or something that is beyond reasonable control occurs, whereby the design or something in the engineering of the building has to be changed, what procedure then occurs? Do you come into it, or is that decision made by the Construction Division?

Mr. GEORGE. That depends on the circumstances, Mr. Chairman.

Mr. HOLIFIELD. Let's assume they have to make a change.

Mr. GEORGE. If it is a major item we get into it, if it is a minor one, a resident engineer has certain latitude, depending on his authorities, we know about it or we don't know about it. Generally if it is a major matter we are in on it and we analyze it and maybe a change order is issued. That might mean more money, or less money, or a change in the specification, or a substitution authorized.

Mr. HOLIFIELD. In other words, the resident engineers have to come to you if it is anything major?

Mr. GEORGE. They do not come directly, but through the Construction Division, but we generally get into that sort of thing.

Mr. HOLIFIELD. If it is of a minor nature, the resident engineer would have the authority to make the change?

Mr. GEORGE. I would say generally, yes; that is the pattern, yes, sir.

STATEMENT OF LT. GEN. WM. E. KEPNER, COMMANDER IN CHIEF, ALASKAN COMMAND

Lieutenant General KEPNER. Who determines that? Does the resident engineer determine that, or do your contact men?

Mr. GEORGE. When dealing with a program as large and as widespread as this, you have got to have certain authorities in the field and it is pretty much up to the resident engineer to determine that thing. If it means obligation of more money, he has got to come in, because there is only so much money, but if it does not mean that, but taking

a little bit more dirt out of there that the contractor is willing to do, and lowering the footings, it is done in the field.

Colonel FOOTE. I can amplify a little bit at that point. The fiscal control on all these jobs is held in the Construction Division of this office in this building. If the proposed change involves added or less cost, then it must come in here. And the instructions to the resident engineers are that even though there may be no change in cost, if the proposed change involves any change in basic design, then it must come in here for review.

Lieutenant General KEPNER. That would go back to the fundamentals of contract law, wouldn't it, that there has to be a meeting of the minds?

Mr. GEORGE. That is right.

Lieutenant General KEPNER. Pardon me for interrupting, Mr. Chairman.

Mr. GEORGE. Now, I have given you another sheet, which is known as a Status Chart, Engineering and Construction. That is the document which shows the jobs of all programs, which we issue to everyone, it goes to Washington, it goes to the Division, it goes to the various command groups, it goes to all the elements of our organization. It is kept up to date, and it is an authoritative document showing the status of the design basically as it is proceeding. Once a contract has been awarded it is held on this chart 1 month, and on the next monthly issue it is dropped, because engineering ceases to have the control of it. We do not want to make this chart too voluminous a document, but this reissue gives everyone concerned periodically the status of design as it is proceeding. The first two sheets I gave you will be incorporated into this chart very shortly. We are now just getting into the planning of this move.

I might add that the program is extremely varied, there are large numbers of people and groups concerned with it. We are attempting in this post-World War II picture all over the world to build for wartime conditions, Mr. Chairman, under peacetime controls. It is fine, but it makes for a difficult job. We are faced with short time elements, and if we fail to be ready in time when the blow comes, we will be criticized. But that is the condition under which we are operating, and it is a difficult operation. We can't get to first base if we don't maintain excellent relationships with our various clients, and I think it is something to be pleased with, to be able to say that for 6 years, with the turmoil that has existed in the organizations, and so forth, postwar, that we have endured nothing but the best of relationships with the commands that we serve. That has not been easy of accomplishment. There is a turn-over because of the military tour of duty, approximately once every 2 years a new group comes in, and there is the element of individuality, the element of changed mission, the element of personal opinion about how things ought to be done and why it should be this way and that way, and to keep those forces coordinated and to keep the commands in focus and oriented is no easy job. But I want to say, with all due respect to them, they have been wonderful, we have enjoyed excellent relationships, and I don't think you will find a responsible person who has knowledge of why we do things and why we must do things a certain way, too critical of the situation.

I think that explains my work. I will be glad to answer any questions.

Mr. ROBACK. I notice on these charts all the architectural engineering for permanent housing is awarded to the same firm. Will you give us an approximation of the total fees that were or are to be awarded to this firm, sir?

Mr. GEORGE. You mean Foss & Malcolm?

Mr. ROBACK. Yes.

Mr. GEORGE. We have done that purposely. They have not designed all our houses, but they have designed all our houses since a period of about 1949, November. At that time a great economy wave took place, Secretary Johnson was under tremendous pressure; he was under tremendous pressure to build the number of housing facilities that were required with the least expenditure of money possible. Up until that time the policies had been different, they gave more consideration to an officer, what he was entitled to for a place to live for a giving up from his pay check of $120 a month, which some officers have to do for living quarters. At that time there were just literally tens of thousands of these units needed everywhere, and what could be done for the least was the necessary policy. The only way that stringent cost covering could be done was to forget the finish, be austere as possible in design, cut the floor area, and do mass construction. The Wherry Act was passed along about that period, and its use was attempted here. But the contractors couldn't build under the Wherry Act, it was impossible to build the houses with the amount of money allowed per unit. It was at that time that we got instructions from the Secretary of Defense's Office through channels that we would select an architect-engineer and give him pretty much commercial free lance in the designing of a house, eight-row, minimum amount of space, with the idea of getting a structure that would serve the purpose but that had all finish eliminated, austere in all respects. We analyzed the field and we made a recommendation to higher authority, one, two, three, as we do it, and others were considered. And because Foss & Malcolm had had experience in commercial housing in Alaska, and were a recognized Juneau architect-engineer firm, and had done very responsible work in the Territory, knew the climatic conditions generally in the Territory, which are severe, we recommended them as No. 1.

They had built certain houses in the Juneau area which had been used as examples of house construction, built for a lesser sum than up to that time we had been able to do it. But we felt a firm of that type, knowing Alaska, would probably render the best job. That recommendation was approved. The severity of this thing was very great. The demand for houses was heavy. The military groups couldn't function without them, and Secretary Symington of the Air Force was extremely alarmed about the situation. We had just 2 weeks to get the preliminary drawing up and we had 1 month to get that final drawing design accomplished after the preliminary drawings were approved, and the preliminary drawings were approved on the basis that the house design would come within a stated, over-all cost, very austere. We then were asked to take bids and see that the construction was finished February 1, 1953, and the design was in progress during March and May, I believe, I am quoting by my memory. It was a "must," it had to be done, and bids were taken on that basis

and awards made. Korea came along in June and knocked that program into a cocked hat. But that was, I think, the answer to your question. They were about the same. Other houses that have come along are changed versions of this design. This first contract covered an eight-row house with three bedrooms and basement. Foss and Malcolm was then asked in this rush period to design a two-bedroom house with basement, then he was asked to design a three-bedroom, no basement, with utility rooms in the upper part. One and two and three bedrooms were integrated in the structure. So there were a number of these contracts, but the changes in sequence were given to the same firm. The fees are very small.

Mr. ROBACK. What is the aggregate—that was my previous question—what is the aggregate in fees?

Mr. GEORGE. I would want to look up the record and give you an accurate figure which I will do, but I can say they are extremly small fees. The first I would say, as I recall it, was in the order of $5,000, and for his second job it was in that same order. Now subsequent to this date these were all based on what we know as an NCO type, 1,080 square feet, noncommissioned officers type. Subsequent to that Congress has authorized a gradation of areas, the maximum area now being 1,250 square feet, the average would be 1,080, then a minimum area would be one bedroom, 790 square feet. And he has been given that job.

Colonel FOOTE. We will get those aggregate fees. (See appendix 4, p. 126.)

Mr. ROBACK. The reason I asked the question, in answer to a question previously asked, it was stated that the architect-engineers got a single fee for designing a house that was used for family quarters.

Mr. GEORGE. That is right, he did, but he is certainly entitled to another fee if he designs a completely different structure.

Mr. DeMARAS. How much of a difference in design is there? The changing of a partition, the elimination of a foundation and building on a slab instead of having a basement?

Mr. GEORGE. There is considerable difference. I am sure when you see the figures you will not have any further questions.

Mr. DeMARAS. I just asked what the difference is, because as I gather, these houses are all going to be substantially the same as to exterior.

Mr. GEORGE. That is right, they are generally the same. On the new houses we have found out, by bidding action, that it is a little bit cheaper to use asbestos shingle, so the new houses have this treatment. The architect has felt that a little bit of fenestration was in order. It doesn't mean much to me, but an architect recommends a little different treatment on that area, but we went into it from the standpoint of economy, it is a little cheaper.

Mr. ROBACK. Are asbestos shingles cheaper than striated plywood?

Mr. GEORGE. A little bit, at least the indications are that they are a little bit. You won't find a great deal of difference, I don't think, but it is a little cheaper.

Mr. ROBACK. What kind of instructions or discretion are contained in the design criteria that come out from higher headquarters? Do they say anything about exterior surfacing?

Mr. GEORGE. They vary. Sometimes they do, generally they leave it in general terms "wood siding," or "drop siding," whatever it is,

they leave it open. But they are in some respects very detailed, I will show you one. I can read the first one we got, which is quite specific.

Mr. ROBACK. The question is, How much discretion does the architect-engineer have with regard to specifying exterior surface?

Mr. GEORGE. Oh, he has certain latitude. A recommendation is made and it might be accepted at the preliminary conference on the design, or it might be turned down.

Mr. ROBACK. The decision to use striated plywood for the exterior surface on given family quarters was made originally by, and at the initiation of the architect?

Mr. GEORGE. That is correct, and it was approved.

Mr. ROBACK. When you get design directives, do these emanate from the using services?

Mr. GEORGE. No, sir. They do indirectly. The construction programs are defended before Congress by groups from the using service, and in that defense they must have a fair idea of what they want, they must have a fair idea of the general set-up of what they want, the square feet involved, what it is to serve. It is not designed, but they have a pretty fair idea.

Mr. ROBACK. The directive describes that?

Mr. GEORGE. That is right. Now, when it comes as a directive to us, that results from close coordination at the Washington level from either the Army General Staff or the Air Force General Staff giving the Office Chief Engineer an instruction on what to write, OCE writes that instruction, and it comes to us.

Mr. ROBACK. So if barracks for enlisted men in the Air Force are designed differently from barracks for enlisted men in the Army, that decision is made at higher headquarters?

Mr. GEORGE. That is right.

Mr. ROBACK. And in an ordinary case that difference would require a different architect-engineer design?

Mr. GEORGE. If it is materially different to the point that you couldn't reuse the old design, or that it wasn't economical to use the old design. We make maximum reuse of existing plans, but there is a point where the difference becomes so great that it pays to start over, and that is individually determined for each job.

Mr. HOLIFIELD. Are these multiple-hundred-space barracks here of the same design?

Mr. GEORGE. No, sir; they are not. There again, as the result of a need to economize, there has been an austerity developed into them. The first ones, they are not plush, but they do have, for instance, maybe a ventilating system in them, but later on it was felt we could do without that. They had a different finish for the exterior, they tried to go to cheaper finishes with the idea of getting more for their money.

Mr. HOLIFIELD. I notice that the buildings are of concrete blocks, in most of these large barracks.

Mr. GEORGE. Yes, sir.

Mr. HOLIFIELD. What is your cost per square foot on concrete block construction?

Mr. GEORGE. We have a very detailed work-up sheet on that.

Mr. HOLIFIELD. I think it would be well to put in at this point, Colonel Foote, a cost analysis on a square-foot basis, if you have it,

of these different types of construction, if you would read it into the record.

Colonel FOOTE. I have it in draft form here, sir. I would like to type it for submittal for the record. Based upon the net area, the concrete frame, reinforced concrete block panel barrack buildings run, for airmen's dormitories, 198-man capacity, $34.10 per square foot. For the 750-man dormitory, $26.15 per square foot. The 200-man barracks at Fort Richardson, $22.69 per square foot. The 500-man barracks at Fort Richardson, $21.20 per square foot. Bachelor officer quarters, which are frame construction, $20.96 per square foot.

Mr. HOLIFIELD. That would be in the eight-unit?

Colonel FOOTE. No, sir; these are bachelor quarters, which contain 40 rooms. The family housing, eight-family row type housing, the square footage cost, net area basis, of the various types figures out to an identical figure of $20.76 per square foot.

Mr. HOLIFIELD. That is all frame construction?

Colonel FOOTE. Yes, sir. On the net area basis, the cheapest structures we construct are the family housing structures.

Mr. HOLIFIELD. How would that compare with State-side construction?

Lieutenant Colonel BRONN. If I may speak off the record a moment.

(Discussion off the record.)

Colonel FOOTE. Our most recent study, of which I have before me an advance-copy form, shows a cost index for Fort Richardson of 1.9 times the average State-side cost. Indexes are applied at considerable peril. It varies, of course, with the type of construction, the relationship between material cost and labor cost and whatever costs you are talking about, as well as the geographic location, and again with the areas being compared with the States they are in. We compare, for reasons of convenience, with the Seattle cost.

Mr. GEORGE. The use of factor without care is dangerous, because each job bears a different index, a greater amount of machinery, a smaller amount of labor. You won't find that difference, on the other hand, in the industrial field.

Mr. HOLIFIELD. I think we are comparing residential cost, not industrial.

Mr. GEORGE. It also depends on the mass involved. If you have a large group of similar structures, you will get it done cheap. I have understood from contractors that some of our jobs went, at some periods of time in the last 6 years, comparable to State-side prices, but that has not been the average, and when we state an index we state an average of our experience. And it is lump-sum bidding—there is no mystery about it—it is what the contractor will lay his money on the line for.

Mr. DEMARAS. On that $34 square-foot figure, do you have the cube index on that?

Colonel FOOTE. No, sir; that was the airmen's dormitory, 198-man capacity.

Mr. GEORGE. That can be obtained if it is of interest to you, but it is not in that file.

Mr. DEMARAS. No; don't put it in the record; I was just curious about it.

Mr. KENNEDY. With leave of the chairman, off the record.

(Discussion off the record.)

(The chairman requested that three copies of the documents to which Mr. George had referred during his talk be furnished the subcommittee. Copies of these documents, two of which are entitled "Status of Anticipated Actions, 1953 Fiscal Year, Army and Air Force Program, Alaska," and the third of which is entitled "Advance Print, Status Chart," are in the files of the subcommittee.)

Mr. KENNEDY. The question I had with regard to that was: On the shop drawings given by a contractor to the district engineer, we will say, are they passed upon by your division?

Mr. GEORGE. Sometimes; sometimes they are not.

Mr. KENNEDY. What circumstance determines that?

Mr. GEORGE. The responsibility lies in the residency and the ability on their part, as they see it, to pass on minor elements, or elements up to a certain degree of importance.

Mr. KENNEDY. For the purposes of the subcommittee record, it is the understanding that the responsibility is divided between you in the Engineering Division and Mr. Gilpin in the Construction Division?

Mr. GEORGE. That is right.

Mr. ROBACK. I wanted to ask a question about the cost differential between reinforced-concrete foundation and concrete block per eight-family unit. Do you have an estimate on that, Colonel Foote?

Colonel FOOTE. No; I do not have. In the course of your analysis on the recent bids, is there such an estimate?

Mr. GEORGE. Let me answer your question. First, let me say that on every job we get we invite the contractor to submit a suggested different design, in the interest of getting anything that is better. We occasionally get something out of that; generally not, but occasionally we get substitutions that come in as an alternate. Some of them are O. K.; some are not O. K. Because of the seismic forces that exist in Alaska—and we are in zone III earthquake territory—and because of the ground-water conditions in many areas, and also because of the cost of laying block, we have never felt that it was a competitive article. We have not designed it as a basic design. I think for the first time, in a recent bid just now analyzed and now recommended for award and on houses, an alternate for block was submitted, was analyzed for its ability to take seismic forces, which means it has been reinforced in the joints, the crevices filled with concrete where reinforcing is used, and provision made on the exterior so that ground water will not seep into the basement. That, together with another item, made them the low bidder. Now, what were the two items, Mr. Gilpin? Do you have the figures on that per building, or per house, on what the differential amounted to?

Mr. GILPIN. No; not per house. I have the total over-all figures. As I recall it, there were 83 units involved.

Mr. ROBACK. What was that figure?

Mr. GEORGE. The saving by using concrete block, reinforced, waterproofed, and a one-pipe system instead of a two-pipe for heating—$42,000 saving over the next low bidder.

Mr. ROBACK. Is that foundation item one specified by the architect-engineer?

Mr. GEORGE. No; that item in this particular case was an alternate proposal by the contractor.

Mr. ROBACK. Regarding basic design in the case of reinforced concrete heretofore used, is that part of the basic requirement of this

office that it be included in the design, or is it at the discretion of the architect-engineer?

Mr. GEORGE. It is at the discretion of the architect-engineer. When these particular houses were under design it was considered, and it was the experience of that particular architect-engineer, who has had wide experience in Alaska, that he could not, whether it was on a cost determination or a technical consideration, see his way clear to recommending anything other than a concrete foundation.

Mr. HOLIFIELD. Now, who would authorize that change? Would it be by the resident engineer, or who would it be?

Mr. GEORGE. No; that change would be authorized in the district office, and Engineering would be involved in such a thing, and it was.

Mr. HOLIFIELD. And you approved it?

Mr. GEORGE. We approved it. First, we had to see what he proposed to do, and we had to analyze that from the standpoint of its ability to take earthquake shock. There had to be changes made in what was submitted to do that; they were not too elaborate. We also analyzed it from the standpoint of whether it would meet satisfactory conditions from the basement-drainage standpoint. Concrete block has a tendency to swell and contract, and it will form cracks at some period in the walls. If we build houses for the military and the basements leak water, we are going to hear about it, and we are going to hear plenty.

Mr. HOLIFIELD. Do you consider that you have provided for them in these concrete-block basements?

Mr. GEORGE. Yes, sir; we do.

Mr. CLOGSTON. What type of concrete block is that? Is it stone aggregate?

Mr. GEORGE. It is gravel aggregate: it is a well-built block.

Mr. HOLIFIELD. Do you waterproof those on the outside? Do you use a tar covering, or some other type of covering?

Mr. GEORGE. It has got to be treated in such a way that it won't leak; that is all.

Colonel FOOTE. That is what is provided: an asphaltic type of covering as the outside treatment.

Mr. GEORGE. If it is $40,000 and you have got 600 units involved——

Mr. CLOGSTON. Eighty-three units, I believe you said. That would be about $500 a unit.

Mr. GEORGE. To get it to the single-house structure, it is in the neighborhood of $60 a house, a dwelling unit.

Mr. CLOGSTON. Is that your understanding, sir?

Mr. GEORGE. That is it.

Mr. CLOGSTON. The $80,000 was for how many units?

Mr. GEORGE. $43,000 on 80 units, 83 family units.

Colonel FOOTE. That is 664 apartments.

Mr. GEORGE. Per family living quarters, talking about savings on the two items submitted as alternates, it is in the neighborhood of $60.

Mr. CLOGSTON. Assuming, of course, that the supply of concrete blocks is ample, would there also be a saving of time by the use of blocks instead of building form work, placing reinforcing steel, pouring concrete, curing it, and stripping the forms?

Mr. GEORGE. I haven't explored that. I do not know whether you have that, Mack, or not.

Mr. GILPIN. It appears obvious that the contractor has figured it is a saving in labor and time; that is his indication. We have talked to other contractors who also have explored the use of concrete block, but they felt that, with their labor saving in having a particular type of form for pouring concrete, they could do a cheaper job; they didn't find the blocks gave a cheaper job. We explored on the basis of blocks; and, with that kind of situation, for 450,000 or 500,000 blocks, the local source is an adequate supply of blocks.

Mr. HOLIFIELD. May I ask if you furnish this cement for the blocks?

Mr. GILPIN. No, sir; we furnish no cement for the blocks. We furnish no cement for the mortar.

Mr. HOLIFIELD. Do you have any control on the quality of blocks and mortar?

Mr. GILPIN. Blocks were submitted on a pro rata basis, so many were taken to the laboratory and checked against the specification. The only thing we furnished under this alternate would be the sand for the mortar. That comes out of our concrete supply, where in the course of crushing there develops this mortar sand, which is very difficult to obtain from local sources. And there is also stipulation that, for lintels over the basement window sash, we will furnish concrete for those; that is all we would furnish. It saves us, by putting in block, the cost of concrete. That is the big difference.

Mr. CLOGSTON. I am wondering about whether the one-pipe is satisfactory in this climate.

Mr. GEORGE. We feel it will be adequate.

Mr. CLOGSTON. As a rule, it isn't.

Mr. GEORGE. I would rather have a two-pipe, but we are bound to be austere, and we are trying to get the minimum adequate, and we are forced to accept anything that meets that.

Mr. HOLIFIELD. You are referring to steam pipes?

Mr. GEORGE. No, sir; a monoflow hot-water system.

Mr. HOLIFIELD. Where you have radiators?

Mr. GEORGE. They are convectors.

Mr. HOLIFIELD. Heated by hot water rather than steam?

Mr. GEORGE. That is right.

Mr. DEMARAS. You are using a one-pipe system?

Mr. GEORGE. We are using a one-pipe system, steam. That item caused a lot of discussion in the meeting of engineers.

Mr. DEMARAS. The reason I asked the question, the use of a one-pipe system is not new. Or is it new on the base?

Mr. GEORGE. No, sir; and we are using it again with the idea of getting the minimum that will be adequate. If I were building a house for myself, I wouldn't use it.

Colonel FOOTE. I would like to introduce Mr. Gilpin, the Chief of the Construction Division, who will outline operations in his Division, and, time permitting, outline the status of the existing construction program.

STATEMENT OF MALCOLM R. GILPIN, CHIEF, CONSTRUCTION DIVISION, OFFICE OF THE DISTRICT ENGINEER, ALASKA

Mr. GILPIN. Mr. Chairman, General Kepner:

The Construction Division, as the name implies, is charged with the responsibility of supervising the construction in the Alaska district.

We are a technical staff representative of this office, and we principally take up on the construction work subsequent to the award of the contract.

Contracts in the Alaska district now are all based on advertised competitive bid, lump-sum-type contract, with the exception of one contract, as Colonel Foote pointed out; that is, the messing and housing contract.

Briefly, if you will refer to this chart which has been put before you on the district, the first branch in my section is the Operations and Maintenance Branch. That is primarily concerned with civil works, where we handle permits throughout the Territory to be issued for fish traps, local piers, or whatever people may want to construct in the navigable waters, and also the commercial statistics of movement of all vessels in the Territory, and the civil-works operations, which are of very minor nature.

The Contract Administration Branch handles contracts and their award, consisting in analysis of them, getting out the contracts with the Contract Section and with the Funding Section. Also in that Section we have a Technical Control Branch, and that is composed of specialists, electrical, steam, primarily for power plants, plumbing, concrete, and construction specialties. That is the theory of what we should have in that section whenever we can fill those positions.

The Construction Service Branch is the reporting and scheduling branch. They do a lot of paper work; they prepare the charts in this room and keep them up; they get out schedules for contractors; they take care of funds for contracts awarded—payments, estimates, progress reports—and they prepare this large volume report here that goes out monthly. That is a consolidated report on every job in accordance with the line of items issued in directives. This is distributed to Washington and to the commands at all levels. Locally, we get out a Construction Division schedule of the job. It is a brief narrative of what follows on the charts. As Mr. George pointed out on the status chart, he holds a job on there for a month after the contract is awarded, then drops it. That is more or less for our own information and the commands', so we can follow respective jobs.

The actual control from the Construction Division to the field is through the last three branches, which are called project branches. Projects North Branch is headed by a project engineer, and he and his assistants handle the Ladd and Eielson jobs exclusively, so that all the liaison from Ladd and Eielson channels through that project office, through the Construction Division, then branches out into the district office, into Legal, Supply, Fiscal, Engineer, wherever for expeditious movement or the necessary function. Projects South Branch handles Fort Richardson, Elmendorf, and Port of Whittier. They function in the same manner. Then we have one I call Projects Alaska General, and they take what is left in the Territory, all the miscellaneous jobs, fence jobs, ACS [Alaska Communications System] jobs, and various small residency work we are called upon to perform for the National Guard and Bureau of Standards. Naturally we get residences spread out throughout the Territory, and those project engineers handle all incoming requests from the residencies and channel them through the proper branch in the district. Likewise, they will take the construction part of anything originating out of district, going out into the respective residencies; so there is that liaison there. In

addition, those project engineers are called on to get into the field and see that the residencies are performing their function as a construction office as to plans and specifications, and to assist in any way to get the job done. After a contract has been awarded, which function is performed in the district office, and the contractor has been notified of the award, we then pass all responsibilities for that contract inspection to the residency. So we advise the contractor that his contracts will be made through the residency, not through district; we feel that responsibility and contact should be made at that level. If arguments ensue, then the matter comes to district. I do not mean that we at this point are out of the picture, because we have day-by-day operations in the field, but we are there to assist them and also check them.

The residencies in turn as set up—there are two large residencies, one at Ladd-Eielson and one at Fort Richardson—are themselves, you might say, small district offices with a smaller volume of work. They themselves have the same functions as the district, except fiscal, legal, and some of those service organizations which they wouldn't need to operate; but supply, property, engineering, inspection, are all performed by the residencies. So, those two residencies have a rather large functional organization, amounting to 200 or 250 people. They are now set up, and inspection of contracts is set up under a zone basis. We have zones at Fort Richardson comprising the troop and family housing; we have a zone that takes care of your technical buildings; we have a zone that takes care of utilities; and we have a zone particularly for large power plants. At Elmendorf we have a zone broken down between the north and south of the east-west runway. At Elmendorf we have housing, both technical and troop, and family and utilities. With the volume of work coming into Elmendorf, that is going to have to be revised. Ladd Field has the same set-up between Ladd and Eielson. Geographically, they are a little more separated and they therefore require an additional supervisor at Ladd and Eielson to assist the residency. Other residencies, by nature of work being more or less individual jobs, are much smaller. The resident engineer may have four or five inspectors; in some places three, except for fence jobs. On the latter we have the nucleus of a residency at Fairbanks, with a subzone at Fairbanks covering interior stations, depending on how you could reach them by plane, going from there down the center of Alaska, and we have a subzone at Nome. We have a residency at Kenai, in the south portion of Alaska, and another at Haines. Those are somewhat smaller residencies in themselves. Whittier, under Project South, is not too large, they only have three contracts. Kenai is quite large in money; it has only one contract.

I would like to point out that the set-up we now have on inspection in residencies and also on construction is not as it always was. When I came in 1948, we were just in the throes of trying to close out a cost-plus-fixed-fee job, the main job being to change from the cost-plus-fixed-fee to competitive bidding. The cost-plus-fixed-fee job was not finished, and it was not determined whether it was going to be stopped or was going to go forward, and that determination had to be made at that time.

The amount of inspection in the field actually was determined somewhat by the nature of the contract. We also had in the district office a

cost-plus-fixed-fee design. In the period 1948–49–50, there was a transition period from the cost-plus-fixed-fee operation to bid contracts, inspection of bid contracts, and to do that we had to get people to do it. We had to go along with the civil-service regulations on payment: Is this job worth this much? Is that job worth that much? The program was slow getting under way in the transition; so inspection was limited. There was a weeding out of individuals' thinking of a cost-plus-fixed-fee as against a lump-sum contract. And it was sometime in 1950 before we were able to set up this type of organization I have finally been able to achieve under the zone set-up and get personnel and division management approval to set up a job of that nature. I thought I could get people qualified to do the inspection. In the process of getting them, we have had recruiting of personnel in the States. On three different occasions we have attempted to get qualified personnel from personal interview programs in the States. We even went so far as to try to get them out of other districts, and those districts went along with us to the extent of telling the employee "We will give you reemployment rights if you go." As a general rule, we weren't too successful. Those we did get, by the time we went through the regulations on having them investigated, we were as much as 5 or 6 months getting those people into the Territory. So, the impact of our planned set-up for inspection, both in our office here and in the field, didn't begin to show any results until early in the spring of 1950. I tried to have an assistant in here. I had three of them, but it hasn't been too simple to get qualified people in the quantities needed to perform all the operations necessary and desirable. We are making mistakes; there is no question about it. We can't help making mistakes with the volume of work we have, but I think they are minor, as far as we can find out.

That, briefly, Mr. Chairman, is the set-up of the Construction Division and their contact with the field and how their work is processed.

One point was brought up as to the responsibility of the resident engineer on making changes. That was given considerable thought and considerable discussion was held. Some say that the resident engineer should have unlimited authority to make changes, any changes, with the contractors; others say it should be limited. I have held that the resident engineer should not have unlimited authority, that he cannot make a change in a major division of the basic design; that he cannot make a change involving funds. Funds are very restricted, we have to be careful on the budget, and a resident engineer could step off and overobligate us on funds without even thinking, so those changes must be cleared with the district office.

Mr. HOLIFIELD. Does that apply to an increase or a decrease in cost?

Mr. GILPIN. Either one, sir. We feel that basically any change involving basic design of necessity involves the money question.

Mr. HOLIFIELD. What would be your procedure in case it were necessary to make that change?

Mr. GILPIN. It would have to be requested in writing to this office.

Mr. HOLIFIELD. By the contractor, or your resident engineer?

Mr. GILPIN. If the contractor wants to make a change, he goes to the resident engineer.

Mr. HOLIFIELD. And he in turn refers it to the district office?

Mr. GILPIN. To the district.

Mr. HOLIFIELD. And the district would either deny it or accept it?

Mr. GILPIN. Or go along with it. And providing there was an equitable adjustment in the contract. A lot of changes come through the other way, from district to the field, on changes following the original design, because of hurry-up in getting the design out, lack of time for the review board to find errors of commission or omission, that have to be rectified for functional operation of the job, that all has to be funded. We set up a 2½-percent contingency to take care of changes. That may not be enough. That is the reason we can't give unlimited authority to the residents to spend money we do not have.

There is a brief picture I have picked out on this. We now have under way approximately 90 contracts throughout the Territory, they represent 35 different contractors. Those 35 contractors have been built up, I feel, by the efforts of the district to make things attractive initially for contractors to get up here, so they could establish themselves in Alaska. For instance, on camps in Alaska, they didn't know how much it would cost to feed a man here; they would have to set up a camp, and they would lose time in setting it up. And when it is realized that the season starts about the 1st to 15th of April and runs till about the 15th of November or 1st of December—they are starting early at that and quitting late, but those are about the outside limits, and north of the range they start 2 or 3 weeks later in the spring and stop 2 or 3 weeks earlier in the fall, so those are actually the outside limits of the season. So if the contractor has to set up camp when he comes in, that is a loss of time to begin with. And on the equipment we had, we felt it should be turned over to the contractor, telling him, "This is yours to use." This is originally, I am talking about. And we had contracts to repair that equipment. That meant the contractor didn't have to mobilize his equipment up here. I think that has paid big dividends, because initially when we came up here there were not over, I would say, half a dozen contractors, and probably only two of those people doing this type of construction work, and now we have attracted some of the best contractors on the west coast.

Mr. HOLIFIELD. How about their ability to make bond, these individual contractors? Are most of them able to make adequate bonds, or do they have to go into combines to make bonds?

Mr. GILPIN. As far as I know, outside of possibly two small contractors, we have never had difficulty with anybody making bond on any job. I think some of the larger contractors, such as Morrison-Knudsen, J. H. Pomeroy, and Peter Kewit, have for some reason, I don't think it is because they can't, but probably some financial, legal, or tax reason, they have combined into joint ventures or whatever you call it. Furthermore, I don't know whether that was for bond, but I don't think it would be, because of the size of the companies.

Mr. HOLIFIELD. Wouldn't that have an effect on competitive bidding, where you had a large project and three large contractors went into a contract together on a bid?

Mr. GILPIN. No. That is what we were afraid of at the time, it looked like it might, and we tried to get as many in here as we could to develop that competition. We went so far in the first 2 years as to hold travelogues. The first year our legal counsel went to meetings in Seattle, Kansas City, Boston, New York, to present this program to the contractors, and we had another the following year in Seattle,

Los Angeles, San Francisco, and Dallas, and I think we got some excellent results. We have had lots of people from Oklahoma, California, back as far as the Middle Atlantic States, around the Chicago area. So I think the fear that you were speaking of, from large combines, has not developed, we have had some excellent competition.

Mr. HOLIFIELD. Can you say for the record that on any of the important projects you have had a number of bids?

Mr. GILPIN. Yes, sir. I don't think there is over one contract bid on which we have had only one bidder, and that was a small job down in southeast Alaska.

I might just point out some things on the board to the subcommittee (referring to charts on the wall). We tried to make these readable so you can understand them. This is a legend of these charts here, not of the colors on the map. This happens to be Fort Richardson. These represent fiscal-year funds or programs. The old program we came in on we call the 1948–49 program, keeping the division on the fiscal year for the initial money we had under the 1949 program, the next program being the 1950 program, and following that the fiscal year 1950–51, the green, which in itself had two supplements, both for the Army and Air Force, the first supplemental appropriation and a second supplemental appropriation. So in fact we had three minor programs and one large program that year, and then the 1952 fiscal year which is just now coming on the books. These charts are made in our Scheduling Section in the Construction Division and are made to show the features, as we say, the major features of a contract. In other words, you have foundations, you have superstructure, and you have your mechanical and electrical portions. Those are weighed by the contractor as to the way he puts those in his bid; in other words, on a percentage basis of 100. So you could take those percentages and multiply by his contract bid and come up with the money value. Against those features, then, we require that he set a bar graph, stating when he will start that particular feature, when he will finish it, and what will be the interim progress as indicated by certain percentages. From those bar graphs we can then compute a progress curve, and that is what these lines here represent, is the contractor's thinking and our considered opinion such that it is O. K., and that he will prosecute a job on time. On those curves and on the bar graphs once a month from an estimate coming in, which is prepared by computation in the field, is shown his progress. That is then plotted on the bar graph and on the curve. And for simple identification we set up two colors—blue, ahead fo schedule; red, behind schedule. They all look pretty red here now. I might say on the red, since it is shown so predominant, that it is not wholly the result of lack of production by the contractor. A lot of it is because of delay in receiving materials, some is delay because of strikes, we have had as many as three strikes this last year, and one, at least, was quite serious. The ship strike, with holding of boats in Seattle and San Francisco, was very serious. The contractors were stuck; they couldn't get substitute materials; they couldn't get materials manufactured and out in time.

The small tabs that go on each construction schedule tell you the name of the job, its contract number, the completion date, the name of the contractor, and his bid. We haven't got them all up to date yet, because the schedules are not all in. This is a map of the area, indicating where that particular facility or building is located in the area.

This is Fort Richardson. I think it might be interesting to the subcommittee to realize that at Fort Richardson, in 1949 there was nothing out there except this loop track; this was all wilderness, and since that time most of the buildings you see on this map have either been completely constructed and used, or will be this year. Practically all the construction at Fort Richardson we anticipate will be finished this year, with the exception probably of this power plant, but we have had many delays in getting switch gear and electrical equipment from the electrical suppliers.

Mr. HOLIFIELD. On things like that, your contractor is given consideration where, for instance, a big company refuses or is unable to bring a generator up here, is he given allowance for that on the completion date?

Mr. GILPIN. Yes, sir.

Mr. HOLIFIELD. He is not charged a penalty in that case?

Mr. GILPIN. No, sir. If the delay is occasioned by CMP (Controlled Materials Plan) or a strike, and it is beyond the control of the contractor, and he has done the best he could, he is given an extension of time.

Mr. HOLIFIELD. May I return to the question of monopoly bidding? You established pretty well by your testimony that you have had competitive bidding among these large groups, or combinations, or individual bidders. What is the situation on their part with their subcontractors? Do they in turn have an adequate competitive situation on their plumbing and on their painting and on their other types of contracts?

Mr. GILPIN. That I can't specifically answer, because only by indirect information can we tell what competition a contractor has allowed himself. He gives us a lump-sum bid for the whole job, then the subbidding is his own responsibility. We call for no action on that, except the name of the subcontractor he is going to use, to see if that firm is satisfactory.

Mr. HOLIFIELD. Will you explain that? You say he might be blackballed? Or do you mean he had worked before on defense projects and his work was not satisfactory?

Mr. GILPIN. That in minor degree, but there is a list of suppliers or subcontractors which are not recognized to be of proper qualification to use on a Government job.

Mr. HOLIFIELD. You mean they have proved to be unreliable?

Mr. GILPIN. Yes, sir. That is the main reason we want to see those names. But they tell me that except for one period in 1951 they have been able to get good compeititve bidding from subcontractors.

Mr. HOLIFIELD. How have the bids run between competing contractors? Have they run close together, or is there quite a latitude between the maximum and minimum bids?

Mr. GILPIN. I think the general statement is that the first three to four bidders have been relatively close, then you may get quite a little spread beyond that. We have been running from four to, I would say a good average would be eight bidders on all jobs. Some run as high as 18 bidders on one job, but on the average we get 4, 5, 6, mostly 8 bidders.

Mr. HOLIFIELD. And you say the first four are usually pretty close?

Mr. GILPIN. Pretty close, yes, sir. On a power-plant job here last week, we had nine bidders and some of the basic bids, in the amount of

$12 million, were as close as $23,000. And the total over-all picture on that job, as finally analyzed, using all alternatives, for over $13 million, there was a little over $100,000 between the first and second bidders.

Mr. HOLIFIELD. I think it would be of interest to our record if you could give us some examples, not necessarily covering your engineering operations, but on different types of structure, such as family or barracks or industrial type, to give us an idea. I am sure it would be reassuring to the Congress to know that, No. 1, there are a lot of bidders, and, No. 2, that the bids run fairly close together, which shows close competition.

Mr. GILPIN. We can furnish you abstracts of bids we make up which show all bidders' items and how much they bid.

Mr. HOLIFIELD. And to whom the bid was awarded?

Mr. GILPIN. Yes, sir; we can furnish that.

Mr. HOLIFIELD. A sample for each type of construction.

Mr. ROBACK. What was the engineer's estimate on that bid?

Mr. GILPIN. I don't recall, it was not too far off; it was in the neighborhood, I think, of around three or four hundred thousand dollars.

Mr. GEORGE. It was right in there with, I think, the second bidder, if I recall correctly.

Mr. HOLIFIELD. That would be your own yardstick as to what you think it should be?

Mr. GILPIN. We make a fair cost estimate.

Mr. HOLIFIELD. Could you also give us those figures on a few of the bids?

Mr. GILPIN. That is already included in the abstract.

We have these charts set up for Fort Richardson, Elmendorf, and this location here. We have attempted to show some pictures as a little bit of eyewash, to show the type of construction done here. We get out photographs quarterly to Washington on the progress of construction. On the other side of the room over here we have Ladd Field. Ladd Field has both an Air Force area and Army area. Eielson, similarly, has an Air Force area, this being the Army area, the rest being Air Force. Whittier, of course, we had to cover up to get that map on there. And then a small map over in here that shows the various ACS (Alaska Communications System) jobs at the outlying stations. The fence work, being restricted, is not posted, it is secret, not covered.

Mr. HOLIFIELD. The legend on those little cards where it is red indicates——

Mr. GILPIN. That refers back to this legend here on construction, the green, the yellow—I don't think we have a yellow on this program, but the red refers back to this column here.

Mr. HOLIFIELD. It indicates the year, it doesn't indicate whether the contractor is behind or ahead?

Mr. GILPIN. This shows it on this schedule. This is red and blue on here. This is just identification of the card with the fiscal year program.

Since time is limited, I won't go into the particular buildings.

Mr. HOLIFIELD. I think that gives us a rounded picture.

Mr. GILPIN. Are there any questions?

Mr. ROBACK. I have a few brief questions. With regard to inspection, does the engineer's office—is there provision on the Washington level for the use of inspection teams?

Mr. GILPIN. They don't send out inspection teams; they send out maybe one or two individuals who go over the job and make general inspections.

Mr. ROBACK. Are they unannounced visits, or do they make inspections at certain periods?

Mr. GILPIN. Sometimes they are announced; sometimes they are not. Generally they are announced, so we can have somebody to accompany them, take them wherever they want to go. They do not say specifically where they want to go or what they want to see.

Mr. ROBACK. When a change is made on the job and it may be approved either by the resident engineer or higher up, what takes place, precisely, when a material difference is involved? Particularly, say, where an item would cost less, or the particular construction activity would cost less?

Mr. GILPIN. Let us assume that the change has been approved to be done. The contractor at our request for an increase or decrease, or it may be at his request, submits a proposal. That proposal may be in detail or it may not be, depending on the first submission. We have requested as much detail as possible. It comes into the resident's office; he makes research on it as to what adequately covers it. The residencies do not have an estimating section. It is then passed on to district, to one of these project offices in my section, and then processed to the estimating section for their review of the proposal as to its adequacy or nonadequacy. If there is a decision that it is an inequitable offer by the contractor, that has to go back to the field through channels for additional information. That may come back in and still be considered inequitable, and the contractor may say, "That is my price, that is the best I can do it for." Or it may have resulted in a meeting of the minds by the estimating section and the field and the contractor, who brings in any subcontractors he wants to on cost, to sit down and detail how much each pipe costs, or whatever is involved, the price of labor, or price of material, in an effort to arrive at a figure. They may find they have made a substantial error, or they may get to a point of mutual agreement on the cost.

Mr. ROBACK. What happens when that figure is agreed upon? What happens as far as the contract goes? Is there a formal document executed?

Mr. GILPIN. First, because of the volume of work, there is a letter sent to the contractor through the residency, advising the contractor that his proposal has been reviewed, and say it is a fixed-fee commission, and by conference a figure has been agreed to, and that letter is to advise the contractor that we have accepted so much money as a decrease or increase. That then is handled through our progress office in my section, then transmitted to our contract section of the district, who makes up a formal modification and prepares it and reproduces it for signature by the contractor and the contracting office. Until that time it has not actually become a legal document or contract, but there is a commitment on the part of both parties by our letter.

Mr. ROBACK. The issuance of numerous change orders obviously increases the cost of administration of the contract; does it not?

Mr. GILPIN. You have to research the elements which would go into the modification.

Mr. ROBACK. Does the increase in cost, the complexity of making change orders, induce a tendency to make changes without issuing any change orders?

Mr. GILPIN. I do not feel it does; no, sir.

Mr. ROBACK. On what basis is it determined when a change is made, whether it results in a material change? Suppose the contractor wants to make a change. On what basis does the resident engineer determine whether this creates either the presumption or fact of a material change which might lie in favor of the Government, in order to be reflected in a change order?

Mr. GILPIN. The contractor, if he wants a change order issued, will indicate to us that he will take a credit or change in price. The residency then must send it in.

Mr. ROBACK. Does the residency research such a request to determine whether the contractor is actually faced with the same or greater cost, rather than a lesser cost?

Mr. GILPIN. They do to the extent of what is involved in that request for change.

Mr. ROBACK. Now, all changes which would result in material difference, are they reflected in change orders?

Mr. GILPIN. Yes; they are.

Mr. ROBACK. So that if there are several hundred changes in a contract, there will be several hundred change orders attached to it?

Mr. GILPIN. There might be, or we might combine a number of those changes in one modification.

Mr. ROBACK. There might be a number of change items covered in one document?

Mr. GILPIN. That is right. A change and a change order are two different things in our terminology. A change is something we do physically, but a change order is the document that legally consummates the change.

Mr. ROBACK. If the residency approves a particular change which it is later determined resulted in a material difference, does he bear any personal responsibility financially?

Mr. GILPIN. No.

Mr. HOLIFIELD. Assuming that there would be an advantage on the side of the Government moneywise, that advantage would be finally obtained at the conclusion of the contract, when overcharges and savings would be balanced against each other, I suppose?

Mr. GILPIN. If they were found flagrantly in error, I would say we would at once review the whole contract.

Mr. HOLIFIELD. I am assuming you have had change orders which in some instances were to the advantage of the Government moneywise, and in other instances you had to reach into this 2½ percent fund to pay the additional cost. At the conclusion of the contract they would be balanced against each other and full credit would be given to the Government for savings, as well as to the contractor for additional cost?

Mr. GILPIN. That goes on automatically as the contract goes along. The optimum is to have a change order the same day we make the agreement, and if it is an increase in the contract, the contractor likes to get the money so he can get it on payment, and the Government on the other hand likes to get the credit. But with the volume of busi-

ness we have and the number of change orders and the number of changes, we are considerably delayed in doing that.

Mr. HOLIFIELD. Assuming there is a dispute between the contractor and the Government in regard to making a change, the contractor says, "This will cost me more money and I don't believe the specifications call for it," and the Government says, "The specifications do call for it and we insist that you do it," how do you resolve that conflict?

Mr. GILPIN. If it reaches that point when the Government makes a directive to the contractor to perform some work, we feel we have analyzed it very thoroughly from a legal viewpoint and from a construction viewpoint before we take that step, because once he is directed to do something the contractor must proceed with the work, even though under protest. Then he has a right to make a claim. And we realize it will go to a claim if it amounts to anything, so we must be careful.

Mr. HOLIFIELD. That particular item would await the finishing or completion of the contract?

Mr. GILPIN. That may be months or a year after the contract is settled. We have a number now where we are holding the contract open for a nominal number of dollars. The contractor has not been hurt, but his claim against the Government is still to be heard.

Mr. HOLIFIELD. That could be a matter of either compromise or litigation?

Mr. GILPIN. By the time it has got to that point on these contracts, it has got to litigation, it has gone beyond the point of any compromise. The contractor has had the opportunity to compromise through hearings with us and did not choose to compromise, so it has gone to litigation.

Mr. HOLIFIELD. In any event, that would be a matter that would be settled by a higher authority than your operational group in the field?

Mr. GILPIN. Yes sir, in that we would be more or less witnesses. The papers are all in. That hearing will be held by the Corps of Engineers Claim Appeals Board.

Mr. ROBACK. You are summoned by the Chief of Engineers' office to give testimony, if the claim has been processed directly through your office?

Mr. GILPIN. That is right.

Mr. HOLIFIELD. If there are no further questions, or no further statements that anyone wishes to make, I suggest that we adjourn at this time.

(The hearing was adjourned at 12:35 noon, September 8, 1952, to be resumed on September 9, 1952.)

MILITARY HOUSING CONSTRUCTION IN ALASKA

(Session of September 9, 1952, held in the Courtroom, Federal Building, Anchorage, Alaska)

TUESDAY, SEPTEMBER 9, 1952

HOUSE OF REPRESENTATIVES,
SPECIAL SUBCOMMITTEE INVESTIGATING
HOUSING CONSTRUCTION IN ALASKA
OF THE COMMITTEE ON EXPENDITURES
IN THE EXECUTIVE DEPARTMENTS,[1]

Anchorage, Alaska.

The hearing was called to order at 9 a. m., Tuesday, September 9, 1952, by Hon. Chet Holifield, chairman of the Special Subcommittee Investigating Military Housing Construction in Alaska.

Present: Representatives Holifield (presiding) and Lanham.

Staff members present: Herbert Roback, staff director of the special subcommittee; Thomas A. Kennedy, general counsel of the House Committee on Government Operations; James H. DeMaras, investigator, General Accounting Office; Carl J. Thoma, investigator, General Accounting Office; and Perley Clogston, engineer, Housing and Home Finance Agency.

Present from the office of the Chief of Engineers, Washington, D. C.: Lt. Col. Carl R. Bronn.

Present from the office of the district engineer, Alaska: Col. L. H. Foote; district engineer; Lt. Col. Carl Y. Farrell, deputy district engineer; Malcolm R. Gilpin, Jr., chief, construction division; and Warren George, chief, engineering division; Maj. James S. Hughes, chief, projects south, construction division; Capt. John H. Coleman, construction division; Kenneth McCaskey, chief, legal branch; James W. Huston, resident engineer, Fort Richardson residency; Gary D. King, project engineer, Fort Richardson residency; E. A. Smith, assistant resident engineer, Fort Richardson residency; and C. E. Johnson, estimating section, engineering division.

Present from the Alaskan Command: Col. John E. Crowley, project officer, J–4.

Mr. HOLIFIELD. Gentlemen, the meeting will come to order.

At this time I will ask you gentlemen to be sworn in as witnesses, and Congressman Lanham will administer the oath.

(At this point, Colonel Foote, Messrs. Gilpin, George, Hughes, Huston, and King were duly sworn, and subsequently testified as indicated throughout the following record.)

Mr. HOLIFIELD. The first topic we will consider will be the substitution of "Welchboard" for striated plywood.

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[1] Name changed to Committee on Government Operations, July 4, 1952.

By letter dated June 14, 1950, Patti-MacDonald Construction Co. stated to the resident engineer that "patent holder and manufacturer of striated plywood is unable to deliver this material." Permission was requested in their letter to use a substitute material called Linwood Siding on contract DA–48, representing 51 eight-family quarters. Were the contractors' claims of short supply and delayed deliveries verified by the district engineer's office?

I direct this question to Colonel Foote, and if, Colonel Foote, on any of these questions directed to you as the colonel in charge, if you wish to refer them to any of your staff you may do so by directing them to answer personally.

Colonel FOOTE. I would like to refer that to Mr. Gilpin, chief of the construction division.

Mr. GILPIN. As far as I recall from the investigation made, as far as we were concerned, in the States there was a short supply of striated plywood at that time. I have no letters to that effect, it is purely a recollection on my part.

Mr. HOLIFIELD. Your response is that you took the contractor's word and did not in any manner attempt to verify his claim that it was in short supply?

Mr. GILPIN. I can't verify it any differently, Mr. Chairman, but I think, as I recall there was an investigation made by telephone to Seattle as to the backlog of the manufacturers on this particular type of wood.

Mr. HOLIFIELD. Now, if that communication by telephone was made, may I ask who made it and if he made it under your direction?

Mr. GILPIN. I may have made it myself, sir. I do not recall whether I made it or whether it was made under my direction. It would have come into my office as to short supply, and I would either have made it myself or had the supply people make it.

Mr. HOLIFIELD. Was any memorandum furnished you by the contractor to that effect, any written report that the striated plywood was in short supply and that he was unable to deliver the material?

Mr. GILPIN. Only insofar as the letter he sent in to us, calling our attention to the fact that he was unable to get the striated plywood.

Mr. HOLIFIELD. Did you make any kind of written record or memorandum of your call to Seattle?

Mr. GILPIN. No, sir; I do not believe I did.

Mr. HOLIFIELD. And you don't recall who made the call?

Mr. GILPIN. I say that, I just recall it has been our practice to try to track these things down wherever possible.

Mr. LANHAM. Are you testifying from your recollection, or is that just general practice? In this case, what did you do?

Mr. GILPIN. I say I have no recollection of it, I just think we did that because that is our general practice, to try to track these things down to see whether the contractor is right.

Mr. HOLIFIELD. This involved the furnishing of many thousands of dollars' worth of a supply material; did it not?

Mr. GILPIN. Yes, sir.

Mr. HOLIFIELD. Is it the practice of the Army engineers to accept that type of testimony from a contractor as to the fact that he is unable to supply materials which the contract calls for and which he agreed under the contract to furnish?

Mr. GILPIN. You mean, insofar as having a written record of some action taken?

Mr. HOLIFIELD. Yes.

Mr. GILPIN. Generally there is a record taken of the thing, of what action is taken to determine whether the contractor is giving us a straight story.

Mr. HOLIFIELD. Were you personally responsible for that, or was someone under your direction responsible for checking on that?

Mr. GILPIN. I can't say, sir. I may have done it myself, I may have had my assistant do it, or I may have had someone in Supply do it.

Mr. HOLIFIELD. Who is your assistant?

Mr. GILPIN. At that time it was Mr. George Carey.

Mr. HOLIFIELD. Mr. George Carey?

Mr. GILPIN. Yes, sir.

Mr. HOLIFIELD. Is Mr. Carey here this morning?

Mr. GILPIN. He was on your list, but he is not here now, since then he has been reassigned from the district to the South Pacific Division in San Francisco, Calif.

Mr. HOLIFIELD. By letter dated July 15, 1950, to the resident engineer, Patti-MacDonald repeated the statement that striated plywood was unavailable and could not be delivered for 8 or 9 months, and indicated the possible use of Welchboard. They asserted, however, that the manufacturer of Welchboard recommended that this material not be installed on the exterior without the application of at least three coats of paint or spar varnish. Was this assertion valid, and if so, why was it ignored by the district engineer?

Mr. GILPIN. I think, sir, we did inquire of the manufacturer as to what his recommendations were. There is a wire from the manufacturer indicating that this material had been used exteriorly with one coat of Rodda stain and had proved very satisfactory.

Mr. HOLIFIELD. Was there any question in your mind as to the suitability of one coat of stain, in view of the fact that the previous statement of the contractor was that three coats of paint or spar varnish were necessary to make this a suitable exterior material?

Mr. GILPIN. Yes, sir, there was. That is the reason we went to the manufacturer to see whether it was necessary to put three coats of paint on it, because it was not only the question of coverage, it was the question of value, a substitute material of equal value to the striated plywood. The specifications called for one coat of stain on the exterior covering.

Mr. HOLIFIELD. Had the engineers ever used Welchboard in construction before, to your knowledge?

Mr. GILPIN. Not to my knowledge.

Mr. HOLIFIELD. It was a new material, then, was it not?

Mr. GILPIN. It was new.

Mr. HOLIFIELD. Were there available at that time other materials which had been proven to be satisfactory, such as asbestos shingles, siding, or any other type of exterior building material which had been proven to be satisfactory?

Mr. GILPIN. I can't answer for the siding, because lumber at that time, finishing material, was in comparatively short supply. I assume that asbestos shingles were available.

Mr. HOLIFIELD. In view of the fact that other material was available which had been proven to be satisfactory, how do you reconcile

the action of the Army engineers in accepting an unproven and new material?

Mr. GILPIN. Sir, what actually happened on the situation was, the contractor advised us of his inability to obtain striated plywood. He made three different mock-ups in the field, of shingles, of ordinary plywood, and a small one of Welchboard, for the review of people from the district. I saw the mock-ups, and I was one of the ones instrumental in picking the plain board, rather than the shingles. It seemed to me that the architect-engineer in developing his plans had tried to produce a differential between the shingles and a plain plywood panel. The shingles did not give that effect. The plain plywood, or this Welchboard, would give that effect by giving a plain surface, breaking up the shingled sections of the building. That was one of the main reasons we did not use the shingles at that time.

Mr. HOLIFIELD. The primary purpose, then, of using the substitution was from the standpoint of architectural design and appearance, rather than from the standpoint of the value of the material itself?

Mr. GILPIN. Well, it is not necessarily as conclusive as that, sir. We were trying to get a material, we thought we had a material in the Welchboard, that was a satisfactory substitute. We picked that over the shingles becaues of the architectural effect.

Mr. HOLIFIELD. What is your opinion of the use of this Welchboard after it has had 2 years of weathering in the structures?

Mr. GILPIN. I think if it would have had paint of the number of coats that it should have had, it would be a satisfactory substitute.

Mr. HOLIFIELD. Do you think that three coats of paint would protect it to the point that its value as a covering would be equal to that of striated plywood?

Mr. GILPIN. It may take two coats, or three coats, I wouldn't say. Apparently it would be better to go to three, rather than two.

Mr. HOLIFIELD. The records show that the West Coast Plywood Co., Aberdeen, Wash., the manufacturer of Welchboard, sent this telegram which you mentioned, dated July 21, 1950, to Colonel Seeman, district engineer, asserting that one coat of Rodda NR25 double strength shingle stain would give satisfactory results for exterior use. On whose initiative was that information solicited? Did the district engineer's office initiate the inquiry, or did the contractor?

Mr. GILPIN. The district initiated the inquiry. The contractor also collaborated.

Mr. HOLIFIELD. Isn't it a fact that on the basis of the manufacturer's representation, the use of Welchboard with one coat of shingle stain was recommended by the resident engineer for approval, which approval was given by the district engineer?

Mr. GILPIN. I believe that is correct, sir.

Mr. HOLIFIELD. Then Mr. Huston, the resident engineer, in his memo dated July 27, 1950, is responsible, as far as this office is concerned, for approving the Welchboard with the one coat of shingle stain?

Mr. GILPIN. He recommended it to the district; the district approved it, and in turn it was the responsibility of the contractor; it was approved by the contractor.

Mr. HOLIFIELD. I note in the record that the resident engineer referred to the use of Welchboard as "the contractor's proposal." On the other hand, Patti-MacDonald, in a letter dated June 16, 1951, to

the district engineer, stated that the use of Welchboard and the painting "was not at our suggestion, but was at the suggestion of the office of the district engineer." In view of that statement, there seems to be some difference between the contractors and the engineers as to the responsibility for initiating the proposal to use Welchboard.

Mr. GILPIN. I think, sir, the way that came up was the mock-up we had in the field, and we said we liked the Welchboard better than we did the other mock-up, so he interpreted that that we picked that as a substitution. I think that is what he intimated in his letter, sir, because he actually made the proposal; we didn't make the proposal.

Mr. HOLIFIELD. Isn't it true that in the approval of this Welchboard you subjected the Government project to the status of an experimental laboratory for a new material, rather than using material which had been used in the past and proved satisfactory?

Mr. GILPIN. In a sense I would say that is true, sir, but we felt that the material, as we saw it and investigated it, was a material that was satisfactory and would give an appearance and durability, and it kept the job moving. It is true we could have gotten other materials by testing, but we thought we had an acceptable substitute.

Mr. HOLIFIELD. Isn't it a fact that a cost comparison between installing striated plywood and Welchboard was requested by the modification and approvals section of the district engineer's office, and that that request was turned down?

Mr. GILPIN. By whom was the request made, of whom? The contractor? It was turned down?

Mr. HOLIFIELD. The request was made by Mr. Anderson to Mr. Boyer, I believe, in an interoffice communication. Mr. Roback will read the communication.

Mr. ROBACK. I read from an interoffice comment sheet a remark by L. E. Anderson, modification and approvals section, dated July 18, 1950, second paragraph:

> It is requested that a project cost estimate be submitted to show the comparison of cost between installing striated plywood with painted treatment and installing Welchboard with two coats of varnish.

A comment by R. H. Boyer, technical control of estimates, referring to the substitution of Welchboard for plywood, includes this comment:

> This substitution was approved by letter No. 001251, dated July 31, 1950, and no action is necessary.

Mr. HOLIFIELD. Why was this cost comparison considered unnecessary, and why was the substitution approved before such cost comparison was made?

Mr. GILPIN. I do not recall such a memorandum, if you have found one, but the comparison requested there was not in conformity with what was considered. Mr. Roback read a statement that asked for a comparison of striated plywood with two coats of paint and Welchboard with varnish.

Mr. HOLIFIELD. No. You misunderstand the paragraph, I believe (reading):

> It is requested that a project cost estimate be submitted to show the comparison of costs between installing striated plywood with painted treatment and installing Welchboard with two coats of varnish.

Mr. GILPIN. That is exactly what I mean. The striated plywood does not have a painted treatment, it had one coat of stain over that required in the specification, and the Welchboard was to be put on with

one coat of paint. And I don't quite understand the comparison of cost, because that was not what was considered in the substitution.

Mr. HOLIFIELD. Apparently there was some reason for that interoffice communication, and you must have considered that type of comparison at one time. Now, passing that, was a cost estimate required for the use of the striated plywood with the Rodda stain and the Welchboard with the one coat of paint?

Mr. GILPIN. Yes, sir, there have been a number of different estimates made on that difference, depending on the various estimates we got from Seattle.

Mr. HOLIFIELD. Did the contractor furnish you cost estimates on the difference?

Mr. GILPIN. Yes, sir, he did.

Mr. HOLIFIELD. What did his cost estimates show as to the difference in cost?

Mr. GILPIN. His estimate showed that the Welchboard was more expensive, including the cost of it and the cost of installation.

Mr. HOLIFIELD. With the one coat of paint, not the three?

Mr. GILPIN. With one coat of paint.

Mr. HOLIFIELD. Did he require at that time an additional compensation from the Government for that difference?

Mr. GILPIN. No, sir; he agreed to put it on at no additional cost.

Mr. HOLIFIELD. I wish to say that if any time you wish to have any of your staff follow up on any technical part of this, just indicate to the chairman your desire, and go ahead. Do you have any additional information to present?

Mr. GILPIN. Not right now.

Mr. HOLIFIELD. On October 16, 1950, the chief of the construction division in the district engineer's office in a communication to the resident engineer stated—

> It is definitely established that the covering material, either stain or paint, using one coat, is not satisfactory to this office.

A two-coat paint job was requested. What was done at that time to overcome this unsatisfactory condition?

Mr. GILPIN. There was no action taken except to determine the cost to the Government of an additional amount of money to provide an additional coat of paint.

Mr. HOLIFIELD. In other words, at that time you in effect stated that one coat would not be satisfactory, but in order to get on with the job, you proceeded with the contractor's suggestion that one coat would be all he had to furnish and accepted the plywood on that basis?

Mr. GILPIN. No, sir, I don't think that is quite the background that it appeared to be from the tone of that letter that you quoted, that the Welchboard had not weathered and was showing the effects of weathering. The question came up of putting an additional coat of paint on at that time, but because we felt that under the specifications the contractor had submitted a substitute material which we had approved and it called for one coat of stain on the specifications, that he had complied with our agreement. To put an additional coat on would cost us more money, and we said we would see what the material would do before we went to any additional expense.

Mr. LANHAM. Might I ask, this Welchboard, what is the surface covering?

Mr. GILPIN. It is ground-up sawdust, I guess, of the plywood. The filler is a plastic material and is developed into a plastic mass and pressed onto the surface of the undercoat plywood.

Mr. LANHAM. Plastic will not take shingle stain, will it? You really don't get the effect of penetration of the wood or of the value of the preserving ingredient in the stain, do you? Isn't it apparent that that sort of covering would not take a shingle stain? It might take spar varnish or something of that sort, but it seems to me it really would not take a penetrating shingle stain, or it wouldn't be effective?

Mr. GILPIN. Sir, I don't think the surface is actually what you might call plastic, it is made into a plastic filler and pressed onto the surface.

Mr. LANHAM. Then it is a plastic filler?

Mr. GILPIN. I mean, sir, it is a plastic mass of the material.

Mr. LANHAM. Then the surface is a plastic surface?

Mr. GILPIN. It is a hard finish that you get on it. The manufacturer has recommended that a stain is what they use on the material. We have some samples of the material with the stain on it. (The witness presented a sample, which was examined by the subcommittee.) This is Rodda No. 2. When we got into it, we found that Rodda No. 2 was a green color, which was not what we wanted on the coloring, and that was the reason we changed to gray, gray was the color we wanted.

Mr. LANHAM. But it was the same type of stain?

Mr. GILPIN. I believe that is correct—is it not, Mr. Huston?

Mr. HUSTON. Rodda No. 25, that is the sample number of the material.

Mr. LANHAM. You can see the covering is a resin type.

Mr. HUSTON. It is bonded wood.

Mr. HOLIFIELD. In line with Judge Lanham's suggestion, it seems to me that is almost a congealed type of covering that stain would not penetrate.

Mr. HUSTON. The stain does penetrate, though.

Mr. LANHAM. What type of stain is this Rodda?

Mr. HUSTON. It is a shingle stain.

Mr. HOLIFIELD. What is the base?

Mr. HUSTON. I do not know what the base is.

Mr. LANHAM. Is it linseed oil?

Mr. HUSTON. It is oil stain, but I don't know whether it is linseed or not.

Mr. HOLIFIELD. Was any attempt made by the engineers to find out what kind of stain this was, and the value?

Mr. HUSTON. We took the manufacturer's recommendation on it.

Mr. HOLIFIELD. Are there any other questions?

Mr. LANHAM. That is all I had.

Mr. HOLIFIELD. We next find that a letter dated April 10, 1951, from the acting resident engineer, John C. Mattina, to Patti-MacDonald, states that—

> Field investigations indicate that the one coat of paint presently being used does not provide an adequate covering.

This is on April 10, 1951. Why was nothing done in the 6 months between the October 16, 1950, letter and the April 10, 1951, letter to change the obviously unsatisfactory procedure of applying one coat of stain to the Welchboard?

Mr. GILPIN. What are those dates, again, sir?

Mr. HOLIFIELD. The complaint was made by the acting resident engineer, John C. Mattina, on April 10, 1951. The previous date was October 16, 1950, which was when you started using it, I presume.

Mr. GILPIN. And you want to know why nothing was done between that time?

Mr. HOLIFIELD. Yes, to change the procedure or to make the procedure more satisfactory.

Mr. GILPIN. Between those two dates, sir? I don't think it had been obvious until it had gone through the winter that this material was unsatisfactory.

Mr. HOLIFIELD. I quote from a letter, the letter referred to, dated October 16, 1950, addressed to the resident engineer, Corps of Engineers, Fort Richardson, Alaska, signed by George J. F. Carey for M. R. Gilpin, chief construction engineer, and I quote from the second paragraph—

It is definitely established that the covering material with either stain or paint, using one coat, is not satisfactory to this office.

Mr. LANHAM. What was the date of that?

Mr. HOLIFIELD. October 16. So it had been definitely decided at that time that it was unsatisfactory, and 6 months intervened, to April 10, 1951, and then a letter was addressed by Maj. John C. Mattina, acting resident engineer, to the Patti-MacDonald Construction Co., in which he stated as follows—

Field investigations indicate that the one coat presently being used does not provide adequate covering. Therefore, it is to be given two coats of paint. As the substitution of Welchboard was proposed by the contractor, no addition to the contract commitment time can be allowed.

Major Mattina, apparently after the weathering of the material through the winter, made this presentation to the contractors, again telling them that it was not satisfactory, and yet there was no action on the part of the contractor, as far as we can find, to make it satisfactory, nor was there any deduction claimed on the part of the engineers for that apparently unsatisfactory material. Did you feel that your hands were tied because of your previous approval of the material with one coat?

Mr. GILPIN. We felt that that was our commitment on the material, that we had approved it, that it had been indicated that there was no difference in price, and that the specifications were being followed with one coat, and we would need additional funds to put an additional covering on it, so we did not require the contractor to do that.

Mr. HOLIFIELD. A memorandum dated June 20, 1951, from the resident engineer to the district engineer, notes that "the Welchboard has shown a tendency to develop longitudinal cracks in the surface, and the stain specified has not provided satisfactory cover." Since the contractor has disclaimed responsibility, the resident engineer suggests that with regard to the finish, "Action should be initiated with the manufacturer on whose representations the material was selected." My question is, what action could be taken at that time? The letter suggests that action should be initiated with the manufacturer on whose representation the material was selected. Now, my question is, what action could be taken at that point, and who could take the action?

Mr. GILPIN. I don't know that you could take action against the manufacturer, it had been submitted through the contractor and had been approved.

Mr. HOLIFIELD. Mr. Huston, the letter I referred to is a letter to the district engineer, dated June 20, 1951, signed by yourself. And I refer you—you have a copy there?

Mr. HUSTON. Yes, sir.

Mr. HOLIFIELD. I refer you to paragraph 2 in that letter, and to paragraph 3, where the ending of paragraph 3 is as follows: "Action should be initiated with the manufacturer on whose representations the material was selected." What did you intend should be done there, in the way of action? Did you intend that the contractor should take damage action against the manufacturer on that?

Mr. HUSTON. I felt that since the Government had accepted Welchboard on the recommendation of the manufacturer, and cracks had developed in the material, that possibly the material had been misrepresented to us by the manufacturer. I don't know what action was taken.

Mr. HOLIFIELD. What was the attitude of the contractor, Patti-MacDonald, on that suggestion of yours?

Mr. HUSTON. I didn't suggest that to the contractor, sir. The letter you quoted was my letter to the district engineer.

Mr. HOLIFIELD. Was that taken up by the district engineer with Patti-MacDonald?

Mr. HUSTON. I do not know, sir.

Mr. HOLIFIELD. The district engineer would have to take the matter up? That was a communication from you to the district engineer, and the district engineer would then have to take the matter up with the contractor, asking the contractor to take that action against the manufacturer?

Mr. HUSTON. If he desired to. However, mine was merely in the form of a recommendation.

Mr. HOLIFIELD. And that recommendation was not approved?

Mr. HUSTON. Apparently not.

Mr. HOLIFIELD. Who was the district engineer at that time?

Mr. HUSTON. Colonel Seeman.

Mr. HOLIFIELD. Colonel Seeman did not take the action, nor did he reply to you as to why he did not take that action?

Mr. HUSTON. No. Basically, one coat of stain was specified on the striated plywood. We didn't think we were entitled to more than one coat of stain on the Welchboard, or any other material we would use. We got a proposal from the contractor for an extra coat of paint, his proposal I think was for an extra coat of stain, but rather than go into the extra money, adding to the cost of the project, it was decided to stay with the one coat of stain that was originally specified.

Mr. HOLIFIELD. Striated plywood, however, has an absorbent exterior. As a layman, I believe most of us could see that it has a porous, absorbent exterior, where your Welchboard has a glazed exterior, which to a layman indicates it would not absorb stain.

(No response from witness.)

Mr. ROBACK. Mr. Huston, do you think that in the initial representation by the manufacturer of Welchboard, that they made a representation that was misleading?

Mr. HUSTON. No, I don't think they did.

Mr. ROBACK. Then why should action be initiated with the manufacturer?

Mr. HUSTON. The manufacturer in his reply to our original query, did not make any statement regarding cracking.

Mr. ROBACK. Wasn't it a fact that at that time the literature of the manufacturer prescribed two, if not three, coats of paint or varnish in the exterior use of Welchboard?

Mr. HUSTON. Their literature didn't say two or three coats of paint were necessary to make it an exterior product. They told us in their telegram dated July 21 that Welchboard is basically developed for outdoor uses and has proved satisfactory on numerous exterior applications, that it meets all requirements of standards for exterior plywood, and that they have obtained very good results with it, using one coat of stain, which was what was specified for the striated plywood. So we naturally felt that one coat of stain was all right for the Welchboard, and that we could make the substitution at no additional cost.

Mr. ROBACK. At that time the contractor advised you, apparently based on information from the manufacturer, also, that at least three coats of paint or spar varnish would be necessary.

Mr. HUSTON. That was his statement prior to our inquiry of the manufacturer.

Mr. ROBACK. In view of the fact that the contractor did advise you against the use of Welchboard with one coat of stain, and in view of the fact that the material was new in the field, hadn't been very long in use apparently, and had not been particularly well tested for such projects, do you think that the net effect of your action should be to burden the manufacturer with some action?

Mr. HUSTON. He had recommended satisfactory results, or he had claimed satisfactory results in previous applications using one coat of stain. We put on one coat of stain, and cracks developed.

Mr. ROBACK. In view of the development that it was obviously an unsatisfactory material after exposure for a brief time, would you say that the engineers in this case acted with reasonable prudence in making the initial investigations of the material and deciding on its use?

Mr. HUSTON. I think we did. The West Coast Plywood Co. is an accepted reputable manufacturer. We made proper inquiry of them. We didn't take the contractor's word for the desirability of the material.

Mr. HOLIFIELD. On later contracts, Mr. Gilpin, you did not use Welchboard?

Mr. GILPIN. No, sir.

Mr. HOLIFIELD. You only used it on the DA–48 contract?

Mr. GILPIN. And DA–61. Those two contracts, sir, were very closely advertised, within 3 months' time, and it was at the time when the West Coast lumber substitution was made on one, and on the other it was practically the same thing.

Mr. HOLIFIELD. At the conclusion of those contracts, or prior to it, you undoubtedly advertised bids for the contracts known as DA–135 and DA–193. At that time, did you insist upon striated plywood?

Mr. GILPIN. In the specifications, yes.

Mr. HOLIFIELD. Was there any attempt on the part of the contractor to substitute Welchboard at that time?

Mr. GILPIN. No, sir, striated plywood was available at that time.

Mr. ROBACK. When the specifications for striated plywood were drawn up by the architect-engineer, was the question of availability considered by the architect-engineer and by the district office?

Mr. GILPIN. I think that the engineer could answer that better. I presume it was.

Mr. ROBACK. Did you hear the question, Mr. George?

Mr. GEORGE. In a general way that is done. This is a manufactured product. There isn't a special investigation as to the availability of all material in any design that is accomplished. If it is a standard product, if it is a product that is manufactured at the time of the design, the circumstances surrounding the procurement and the contracting actions aren't gone into beyond the point that it is a standard product.

Mr. ROBACK. This was a new use, however, as far as the Government was concerned?

Mr. GEORGE. True, true from the standpoint of the use of that, but that was the architect-engineer's thinking, it was concurred in by the Government. And I don't think there is anything wrong with the use of the material.

Mr. ROBACK. My question was directed not to the value of the material, but to its market availability at the time the specifications were drawn.

Mr. GEORGE. Generally this concept is had at the time plans are drawn, that the products specified are in manufacture and generally are available. We do not specify something that is not available, but we don't make inquiry at that time into each product. Bearing in mind that these are the circumstances surrounding this particular contract, Mr. Chairman, shortly—I think I am correct on the dates—shortly after the award of this contract, the Korean war came along and it disrupted the whole economy. I think those are the datelines of this action. And this isn't the only material we have had difficulty with. We have had to, on our jobs in general, make many, many substitutions where contractors have not been able to get the material. Does that answer your question?

Mr. ROBACK. I won't say whether it does or not. I think the answer is that in this particular case, if I understand your answer, the question of availability of striated plywood was not gone into by either the architect-engineer or the district engineer.

Mr. GEORGE. I believe the facts will disclose that he had been using this material, he felt it was a good material to use, he knew it was under manufacture, therefore he specified it.

Mr. ROBACK. What kind of research was done by the district engineer to verify the allegations of scarcity on the part of the contractor?

Mr. GEORGE. That is not in my province as a part of the district organization.

Mr. GILPIN. I think I gave as much on that at the beginning as I could.

Mr. HOLIFIELD. Now, do you have invoices which show the cost of Welchboard and striated plywood?

Mr. GILPIN. We have no invoices, sir, except prices which our Seattle office secured.

Mr. HOLIFIELD. Do you have those prices, Mr. Huston?

Mr. HUSTON. No, sir. I have notice of the contractor's cost of plywood.

Mr. HOLIFIELD. Does that show the comparative cost of striated plywood and Welchboard?

Mr. HUSTON. He represents Welchboard as costing more than striated plywood.

Mr. HOLIFIELD. Will you please give us the cost of Welchboard as presented by him.

Mr. HUSTON. The basic cost of Welchboard is less than the basic cost of striated plywood. However, the labor costs more and the freight on Welchboard costs more, it is a heavier product. The contractor represents that on present building he could install Welchboard for $392.93, whereas he could install plywood for $385.34. The cost difference there is $7.59, which he had agreed to absorb. Labor cost of handling Welchboard is more than for striated plywood, because it is quite fragile until it is nailed on the surface of the building.

Mr. HOLIFIELD. We will have a 5-minute recess.

(The hearing was recessed at 10:15 a. m., September 9, 1952, and resumed at 10:30 a. m., the same day, with all parties who had previously been present again present in the courtroom.)

Mr. HOLIFIELD. Are the any further questions on the Welchboard?

Mr. THOMA. I have a few questions I would like to ask. Getting back to the cost comparisons, when Patti-MacDonald and Boespflug-Birch notified you there was a shortage of striated plywood, did they ever inform you that they had obtained quotations from certain suppliers in Seattle of figures from $255 a thousand to $275 a thousand? Did they ever give you that information, that they had obtained quotations of those figures at Seattle?

Mr. GILPIN. I know we have a letter in which they gave us their price. You have that. I don't recall whether it was $200.

Mr. HUSTON. They cite the cost of striated plywood as $192.

Mr. HOLIFIELD. What was the cost quotation on their original cost estimates?

Mr. HUSTON. This is the only cost breakdown they have given us.

Mr. HOLIFIELD. Was that their original cost breakdown at the time they made their bid?

Mr. GILPIN. May I answer that, sir? These bids are lump-sum bids, they are not broken down into the detailed component parts.

Mr. HOLIFIELD. I realize that they are lump-sum bids, but I wondered if they submitted along with their lump-sum bid a breakdown of their figures which they used to compute their bid.

Mr. GILPIN. No, sir; except as we requested them on a breakdown of their bid.

Mr. HOLIFIELD. When was this particular breakdown furnished you?

Mr. HUSTON. November 14, 1950.

Mr. HOLIFIELD. Was that on the basis of striated plywood at the time they bid on DA–48?

Mr. HUSTON. He said, and I quote:

> In our letter of July 26, 1950, we stated that the installation of Welchboard on contract 48 would cost slightly more than the striated plywood specified. For your information we show below the breakdown of these costs.

These are the figures he submitted at that time. We selected the Welchboard solely on the basis of the comparison of the two ma-

terials, we thought the Welchboard comparable to the striated plywood.

Mr. HOLIFIELD. The point of my question is, he was furnishing you there the cost of striated plywood as used by him in computing his bid, his costs, when he acquired the contract. However, he is not submitting to you the cost of plywood as of the date of requested substitution.

Mr. HUSTON. Yes, he refers to his July 26 letter and gives us his cost breakdown he used at that time, although this letter is dated a year later.

Mr. HOLIFIELD. That is right. The point is, in July this striated plywood cost $192.

Mr. HUSTON. No, it was in July, sir, that they quoted a price of $192.

Mr. HOLIFIELD. Now, the question of Mr. Thoma is—you may proceed, Mr. Thoma, as to establishing what the price was at the time he asked for the substitution.

Mr. THOMA. In so far as we could ascertain, the lowest quotation that he got was $255 a thousand, the highest, $275 a thousand. At the time these quotations were obtained, the supplier who quoted the $275 a thousand furnished striated plywood to Boen-Sealand at Ladd Air Force Base on a contract which was awarded just about a month or a month and a half after DA–48, and the Boen-Sealand price at the time was $275 a thousand.

Mr. HOLIFIELD. On what date?

Mr. THOMA. We can't tell the exact date, but from what the supplier stated—well, there is no indication of just exactly when it was shipped up here, but the contract was dated June 26, 1950, and presumably all of these quotations came in to the supplier around the same time, because he mentioned at the same time he furnished these quotations to Boespflug-Birch and Patti-MacDonald that he also had furnished quotations to Boen-Sealand, and he heard nothing further from Boespflug or Patti-MacDonald, but Boen-Sealand purchased enough for their contract bid at $275 a thousand at that time.

Mr. HOLIFIELD. Was that the spring of 1951?

Mr. THOMA. No, it was sometime in 1950.

Mr. LANHAM. Mr. Chairman, it seems to me that you are asking a question of the witness and that question ought to be answered, but this further matter of the availability of plywood is a matter of rebuttal and should be presented by Mr. Thoma under oath.

Mr. HOLIFIELD. I think you are right.

Mr. LANHAM. I think Mr. Thoma asked the question, whether or not the contractor told the Government that the price of plywood at that time was $275. Now, did they tell the Government that? Was that the question?

Mr. HOLIFIELD. Mr. Thoma, will you please come around and take the chair, and I will administer the oath. We would like to have your testimony on the record.

(Mr. Carl J. Thoma was duly sworn and subsequently testified as a witness for the subcommittee.)

Mr. HOLIFIELD. Now, Mr. Thoma, do you wish to make a statement in regard to the availability of striated plywood at the time the contractor was trying to fulfill its contract?

TESTIMONY OF CARL J. THOMA, INVESTIGATOR, GENERAL ACCOUNTING OFFICE

Mr. THOMA. Mr. Chairman, first I would like to have that question answered that I asked. I wish the stenographer would repeat the question.

Mr. LANHAM. That was the question I wanted answered.

Mr. HOLIFIELD (to the reporter). Will you read that question?

(The question was read by the reporter, as follows: Getting back to the cost comparisons, when Patti-MacDonald and Boespflug-Birch notified you there was a shortage of striated plywood, did they ever inform you that they had obtained quotations from certain suppliers in Seattle of figures from $255 a thousand to $275 a thousand? Did they ever give you that information, that they had obtained quotations of those figures at Seattle?)

Mr. HOLIFIELD. Will you respond to that question, Mr. Gilpin?

Mr. GILPIN. The only prices we had from the contractor were the prices that he submitted to us in his letter dated November 14, 1951, with reference to his request for a change from striated plywood to Welchboard as of July 1950. The prices quoted by the contractor for striated plywood was $192 a thousand in Seattle.

Mr. LANHAM. Did you make an investigation as to the price of plywood at the time he asked for the change?

Mr. GILPIN. We had a wire from our Seattle branch office in which the following basic Seattle material and labor costs are submitted: Three-eighths inch striated plywood, $210 per thousand square feet; shipping weight, 1,250 pounds.

Mr. LANHAM. What date is that?

Mr. GILPIN. This is in September 1951.

Mr. LANHAM. Was that at the time he asked for the change?

Mr. GILPIN. No, sir; this was after we were trying to settle the cost of the material. He later qualified his message that—this was about the 27th of September—reliable reports from the manufacturer's representatives indicate that prices of three-eighths inch striated plywood were the same on August 1, 1950, as those transmitted to your office September 17, 1951, which is the quotation that he made just previously.

Mr. HOLIFIELD. Of course, the significance of our inquiry is that notwithstanding his information that this price was as quoted, did he make the point that it was unavailable at the price of $210, or that it was available at the price of $210, at the time he wanted to use it in construction up here, or slightly prior thereto?

Mr. GILPIN. This quotation, sir, is not with reference to the availability, because it was transmitted a year after the question of availability.

Mr. HOLIFIELD. This was merely establishing the price at the time of the bid?

Mr. GILPIN. That is correct, sir.

Mr. HOLIFIELD. In order to compare the price of Welchboard with striated plywood?

Mr. GILPIN. It was to determine whether the Government was entitled to a credit for the substitution of Welchboard for striated plywood.

Mr. THOMAS. Could I interpose a statement right there?

Mr. HOLIFIELD. Go ahead.

Mr. THOMA. The quotation of $210 per thousand square feet was apparently a quotation furnished by the United States Plywood Co., from their contacts with various dealers and suppliers. They generally deal through suppliers and dealers, and any quotations they get from contractors and others for striated plywood generally refer to the supplier-dealer price, and the supplier-dealer naturally has added his profit and overhead to this cost. That cost to the dealer, present cost, of striated plywood is $220 a thousand square feet. The general manager of the plant and warehouse in San Francisco stated that back in 1950 it was slightly lower than that, and that that price is what they furnish their dealers and suppliers. Those who buy in carload quantities get a discount of probably 20 percent off that price.

Mr. HOLIFIELD. At the time of this construction, do you have any information to give the subcommittee that striated plywood siding was available to contractors in Alaska, and that striated plywood was being delivered to contractors in Alaska during this period of time, in the first 6 months of 1951?

Mr. THOMA. According to information which was furnished by a supplier in Seattle, both Patti-MacDonald and Birch-Boespflug contacted them in 1950 for quotations on striated plywood. He furnished them a quotation of $275 per thousand square feet, and inasmuch as he heard nothing further from them he destroyed his quotations and forgot about them. He stated that at the time these quotations were being made to Patti-MacDonald and Birch-Boespflug, that he also furnished quotations to Boen-Sealand Construction Co., who were building, I believe, 14 eight-family dwellings at Eielson on contract DA–51, which was awarded on or about June 26, 1950, approximately 6 weeks after contract DA–48, and that he shipped Boen-Sealand's complete requirements for that contract at a price of $275 per thousand square feet. He admitted that plywood was somewhat in short supply, but indicated that he would anticipate no trouble in filling any orders he got from the other two contractors.

Mr. HOLIFIELD. The material being in short supply, undoubtedly it was bringing gray market prices at the time?

Mr. THOMA. That we could not determine, but apparently there was no violation of any price ceilings or anything like that, so far as the $275 quotation went.

Mr. ROBACK. Mr. Chairman, I wonder if any one of the witnesses here is prepared to say as a matter of fact that plywood was not available at the time the decision to make the substitution was made.

Mr. HOLIFIELD. Mr. Gilpin?

Mr. GILPIN. I have already expressed my opinion that we made inquiry, as I recollect, although we have nothing to show for it in the record, but as far as we could we determined and my recommendation was that plywood in the quantities required was not available at the time.

Mr. HOLIFIELD. Looking back over the records as made available and subsequent investigations for the purpose of possible adjustment in favor of the Government, are you now satisfied that at that time such plywood was not available?

Mr. GILPIN. I have nothing to say that it was or was not. I am not satisfied that in the quantities demanded for the job it was available when needed in the summer of 1950.

Mr. HOLIFIELD. But you couldn't testify to the fact that plywood was available or was not available?

Mr. GILPIN. No, I could not.

Mr. LANHAM. You never did really answer my question. That was whether at the time the contractor asked for the change and stated he could not obtain the plywood, you investigated the cost of the plywood at that time. Now, you have stated you made investigation later, but did you make any effort to determine the comparison between Welchboard and striated plywood at the time the contractor told you the striated plywood was not available but that the Welchboard was? Now, have you any record of any inquiry at all as to the comparative costs of those two materials at that time?

Mr. GILPIN. The only record we would have, sir, if I can find such a record, would be with our estimating department at the time.

Mr. LANHAM. Well, surely you made some investigation when the man, the contractor, approached you with the idea of making a substitution, surely you or somebody in your organization made some investigation as to the truth of his statement and as to the comparative costs of the two materials.

Mr. GILPIN. I believe that is true, sir.

Mr. LANHAM. All right, now, can you show that that was done and what the result was, or what the information you received was?

Mr. GILPIN. We would have to go to the estimating section.

Mr. HOLIFIELD. Is there a representative of your estimating department here?

Mr. GILPIN. We have a representative here presently, but he was not here at that time. You realize we have had quite a bit of turn-over in our personnel, and estimating was in the construction section in another building then, it has since been transferred to the district office.

Mr. HOLIFIELD. Is the man who was in charge of that section at that time present here today?

Mr. GILPIN. No, sir; he is not.

Mr. HOLIFIELD. What is his name?

Mr. GILPIN. Mr. Boyer.

Mr. HOLIFIELD. Is he available in Anchorage?

Mr. GILPIN. No, sir; he resigned to take another job in the States.

Mr. HOLIFIELD. Who succeeded him? Who is presently occupying that office?

Mr. GILPIN. Mr. Johnson is now occupying that office. Captain Buchanan succeeded Mr. Boyer.

Mr. HOLIFIELD. Do you have any further response to the judge's question?

Mr. GILPIN. I would just like to explain that two things were considered. The thing was to get the material in quantities to get the job closed, and the primary consideration was to get a material that would be equal to striated plywood. And as far as could be determined, we tried to find the record on it but it was not available, what the comparative cost would be, and there appeared to be no saving to the contractor in putting on the Welchboard. The Welchboard appeared to be a satisfactory material, and we were able to get the material and get it on and get the houses built as soon as possible.

Mr. LANHAM. The trouble is you seem to have relied on the contractor's word and have made no, absolutely no investigation as far as the record shows about the facts, first of all, as to whether or not

plywood was available, and, in the second place, as to the comparative price of the two products. Now it seems to me there is a fatal error there or that somebody has simply failed to do his duty; I don't know who it is—the estimator, or who—but you then should have known, first, whether plywood was available, and in the second place you should have known through other than his statement the difference in price. Now somewhere in your records that ought to be available, and that is what we want.

Mr. ROBACK. May I add, Mr. Chairman, that they took the word of the contractor as to the unavailability of the plywood, but they turned down his word as to the unsuitability of the Welchboard.

Colonel FOOTE. May I make a statement at this time, Mr. Chairman?

Mr. HOLIFIELD. Yes; proceed.

Colonel FOOTE. The report on which the queries are being based has been available to the Alaska district only since late Saturday evening, and I should like to request the chairman's permission, wherever there appear to be obvious gaps in our available record, to permit us to further research files to see if we cannot obtain for the record substantiating information.

I should like also to point out that with the volume of district business and the administration of contracts, we find it wholly impractical to document in detail every action taken. Many of the inquiries that are made in the course of considering changes, either those suggested by the contractor or other changes, must of necessity be made by telephone and by informal conversations, as to which we in a situation of this character unfortunately find ourselves without record.

Mr. HOLIFIELD. Your first request to furnish further information on any of these queries of course will be gladly granted by the subcommittee. That is what we want, information, and we are glad to grant that request, and we realize that you haven't had the report long enough to possibly go through your whole document section and find the answers. On the second point you made, I think the subcommittee would be willing to go along with the idea of minor changes by telephone or by oral agreement, providing such changes were later transferred to the records; but in the case of major changes involving hundreds of thousands of dollars, such as the value of the plywood in this whole contract, then it seems to me that a matter of that major importance should be a matter of written record in the way of the request of the contractor for the change, and the approval of the change, and the justification of that approval from the standpoint of cost estimates on both procurements.

Mr. THOMA. May I also make one other comment with respect to this cost comparison? At the time we were up here last summer, that is, the summer of 1951, there was a cost comparison made between Welchboard and striated plywood by the fair costs estimates section, and that initial estimate indicated that the Welchboard was approximately $15,000 less than striated plywood on the two contracts DA–48 and DA–61. Subsequent to that preliminary estimate, labor and material take-offs were made on striated plywood versus Welchboard.

Mr. LANHAM. Did that original estimate include both labor and material costs?

Mr. THOMA. Actually it was based primarily on material cost, because it made mention that the Welchboard installation did not differ essentially from what was called for in the contract. The plans and

specifications called for nails, I believe, at 6-inch intervals and at 12-inch intervals on intermediary bearings. And in Colonel Seeman's letter of November 15, 1951, he included in there an estimate on the difference in cost between the striated plywood and Welchboard which indicated a difference of approximately $55 a building. In other words, Welchboard cost $55 less a building to install. The credit he figured on contract DA–48 amounted to just $2,805, and applying this figure to DA–61, which pertained to 38 buildings, he got a reduction in cost on that contract which would amount to approximately $2,000. But there have been at least two material take-offs on striated plywood, one in the summer of 1951, the other sometime possibly in November 1951, which definitely show that the Welchboard is a cheaper material from the price standpoint than striated plywood. And if those particular take-offs had been compared at the time this change was initiated, I am sure there would have been credit due to the Governmeent, because Mr. Anderson, in the modifications and approval section, wrote a memorandum to Mr. Boyer asking for that particular cost comparison, and there was a notation on that memorandum in Mr. Boyer's handwriting which says, "Striated plywood approved, this is final action." And that ended any further correspondence as far as cost comparison consideration.

Mr. LANHAM. You mean Welchboard approved?

Mr. THOMA. That is right; I meant, "Welchboard approved, this is final action."

Mr. LANHAM. You said "striated plywood," that is why I raised the question.

Mr. THOMA. "Welchboard approved, this is final action." That was written in Mr. Boyer's handwriting. And that apparently closed off this particular case. Insofar as comparison-of-cost statements go, we did ask Mr. Boyer about that, and he said, "Well, when action is taken, it is too late for me to do anything." He said, "They went ahead and approved Welchboard, there was nothing further for me to do," sort of indicating that those cost statements should have been prepared before approval was given.

Mr. HOLIFIELD. Who is Mr. Boyer?

Mr. THOMA. He was chief of the fair costs estimates section at that time.

Mr. GILPIN. May I add something to that statement, because I don't agree entirely with the implication of Mr. Thoma's remarks as far as Mr. Boyer and Mr. Anderson go. The estimating section, actually as far as approval, comes into the action when they are requested to make the cost comparison to determine whether or not an approval of a material or a substitution results in a credit to the Government or an increase in cost. Those actions are generally taken, because of the large amount or volume of work, not before the actual approval of some substitution is made. In this case the Welchboard had been approved. What Mr. Boyer meant when he said he had nothing to do with it is something I do not know. But there have been cost studies. As Mr. Thoma pointed out, there are two he knows of, and I think there is another cost study which results in a showing that Welchboard is a more expensive product than striated plywood.

Mr. LANHAM. What is that study; who made that?

Mr. GILPIN. The estimating section.

Mr. LANHAM. When did they make that study?

Mr. GILPIN. That I think is—if I may refer to my file. (The witness refers to his file.) Here is a cost study on the 29th of February 1952, and one on the 25th of March 1952.

Mr. LANHAM. That was made after the facts were known, though, and after this investigation had been begun, and apparently to justify the action.

Mr. GILPIN. Sir, that may be your inference, I do not think that is true.

Mr. LANHAM. I mean, that is the inference I get, that this was made after these other comparisons and after the investigation was begun. You made no comparison at the time and your own cost section had made a different estimate previously.

Mr. GILPIN. That is correct, sir. The cost section makes quite a number.

Mr. LANHAM. And in an effort to justify the action. I may be wrong, but that is the inference I get from listening to the testimony.

Mr. GILPIN. Sir, it isn't a question that we have to justify somebody's ideas or opinions. To me, the estimating section gets the facts and the facts are open to somebody to review, and if they are wrong in the first estimate, I think they should be corrected.

Mr. LANHAM. That is your inference, but I draw a different one. But I am not passing on it.

Mr. HOLIFIELD. What do these later estimates show, Mr. Gilpin?

Mr. GILPIN. They show that striated plywood costs less to install.

Mr. HOLIFIELD. They show that striated plywood costs less to install?

Mr. GILPIN. Yes, sir.

Mr. HOLIFIELD. Is that the material itself, or does that take into consideration the additional labor or additional painting, or something like that?

Mr. GILPIN. It is material, labor, and freight, a comparison of the two materials.

Mr. HOLIFIELD. Were your first cost estimates based on those figures?

Mr. GILPIN. Yes, sir.

Mr. HOLIFIELD. It was also based on labor, initial cost, and freight?

Mr. GILPIN. The first estimate that they took was a comparison of material and freight only. That showed the Welchboard costing less. The later ones show a labor cost in respect to the two that made the difference, the labor of installation.

Mr. LANHAM. Could you tell me how there could possibly be any difference in labor in installing the two materials? They are both the same size and they are applied the same way, apparently.

Mr. GILPIN. I think you will find, sir, that the labor of applying the Welchboard requires more meticulous handling because of the hard finish. The driving of nails in it is more difficult.

Mr. LANHAM. Why wasn't that taken into consideration in your first estimate?

Mr. GILPIN. I don't know, sir, I didn't make the estimates.

Mr. ROBACK. Did those later estimates include the fact of your added maintenance and repair costs because of unsuitability of the material? In other words, did you include extra labor cost because you had to go and renail and replace some of those panels?

Mr. GILPIN. No. No, sir. This is the labor of the first application. These are figures, sir, that are in the record. None of these persons that made these figures are here that I can call on to say how they made them. However, Mr. Johnson is available, he can recheck them if you desire.

Mr. HOLIFIELD. Why was this February estimate made? That is the fourth estimate made on that same thing, I believe. Why was it necessary to continue making estimates? Is it because of the fact that claims have been filed on this?

Mr. GILPIN. From an investigation which the General Accounting Office made, there was the implication that Welchboard was a less expensive product, there was a figure placed in the letter to the General Accounting Office which indicated a credit to the Government, which Mr. Thoma just referred to, of $2,000 per contract. They have rechecked those figures, to see whether they are accurate, if there is a saving, or if the saving indicated at that time was adequate.

Mr. ROBACK. After the investigation, they came up with an estimate that there was no saving.

Mr. GILPIN. These estimates show that at the date the substitution was made, the plywood was cheaper to install than the Welchboard.

Mr. HOLIFIELD. And the record has not been made clear—passing from this subject—the record has not been made clear that striated plywood was unavailable. It appears from the testimony of Mr. Thoma that striated plywood was furnished at this time to another contractor at a price quite a bit in advance of the cost estimate price quoted by Mr. Huston. So there is some doubt in the minds of the subcommittee as to whether this material was available, not at the price originally planned by the contractor, but at an advanced price due to shortage of the material.

Colonel FOOTE. Sir, would the chairman object to noting also in that connection that the striated plywood was furnished on a contract covering 14 units, and its availability for the two contracts involving 89 units has not been established?

Mr. HOLIFIELD. You are speaking of the plywood that was furnished to this other contractor?

Colonel FOOTE. Yes, sir.

Mr. HOLIFIELD. And that was on the basis of 14 units?

Colonel FOOTE. Yes, sir. The demand at Fort Richardson was for 89 units.

Mr. HOLIFIELD. I think it is fair that that should go in the record.

(Mr. Thoma left the witness stand and resumed his place at the table.)

Mr. HOLIFIELD. If there are no further questions by the subcommittee on that point, we will pass on to the second item, which the General Accounting Office's letter listed as No. 2, the omission of radiator valves from convectors under contract DA–48 and contract DA–61. Information that individual cut-off valves were omitted from all convectors in the eight-family quarters construction, under contracts DA–48 and DA–61, was brought to this subcommittee over a year ago. Notwithstanding that the contract specifications required the installation of a valve on the "supply to each unit of radiation and convection," the installation of those valves was not made. The value of the valves deleted, including material, labor, and freight, is estimated to be about $29,000 for contract DA–48 and $18,000 for contract DA–61.

After this matter was reported to the subcommittee and subsequent to notification to the engineers that this item had been deleted, we understand that directions were given to the contractor to install them.

Mr. GILPIN. There was one part of what you read I didn't quite get, about the center, that the contractor didn't put on the valves.

Mr. HOLIFIELD. The information we had was that the convectors were installed without cut-off valves.

Mr. GILPIN. Initially; that is right.

Mr. HOLIFIELD. Initially?

Mr. GILPIN. Yes, sir. On contract DA–48, that is.

Mr. HOLIFIELD. When was the first notice you had that the convectors were being installed without these cut-off valves?

Mr. HUSTON. April of 1951, April 7, 1951, I wrote a letter to the contractor and pointed out the absence of the cut-off valves, citing the specifications, and directing the contractor to put them on.

Mr. HOLIFIELD. How many houses at that time had been plumbed, under DA–48 and DA–61?

Mr. KING. Approximately 75 percent.

Mr. HOLIFIELD. Who first reported this omission?

Mr. HUSTON. Our inspector.

Mr. HOLIFIELD. What was your inspector's name?

Mr. HUSTON. I don't know. [To Mr. King:] Do you recall?

Mr. HOLIFIELD. Mr. Donald Gordon was the inspector that called this to your attention?

Mr. KING. The business of the convector valves was a matter of discussion between Maj. John Mattina and myself. On my cursory inspection before taking over the authorities of zone engineer at Fort Richardson, I was accompanied by Major Mattina. We discussed the various phases of construction and the question was asked by Major Mattina and myself, whether or not the convector valves had been a matter of discussion or whether or not they were shown in the specifications. Subsequent correspondence will pick up from there, and the report to the resident engineer. The matter was taken up by the resident engineer in correspondence just cited by Mr. Huston, that the convector valves were absent, and directing that they be placed on in accordance with the specifications.

Mr. HOLIFIELD. You have never answered my question in regard to who reported this deletion of the valves.

Mr. KING. Was that question directed to me, sir?

Mr. HOLIFIELD. To either of you.

Mr. HUSTON. It was reported to me by Mr. King. He personally noticed that there were no valves there.

Mr. LANHAM. You just testified a moment ago that it was reported to you by your inspector.

Mr. HUSTON. Mr. King is in a sense an inspector working under me.

Mr. HOLIFIELD. You are in charge of the inspection division, Mr. King, are you?

Mr. KING. I am in charge of a zone in the residency.

Mr. HOLIFIELD. And the line of authority from field inspectors flows through you to the resident engineer?

Mr. KING. That is correct.

Mr. HOLIFIELD. Then my question is directed to you. Who first reported the omission of the valves to you?

Mr. KING. I noticed it, as I have testified, in cursory inspection, accompanied by Maj. John C. Mattina, of the area housing. Upon our cursory inspection I noticed the absence of the valves and I discussed the matter with Maj. John C. Mattina, assistant resident engineer.

Mr. HOLIFIELD. What date was your discussion with Major Mattina on that, do you remember?

Mr. KING. March 28 or 29.

Mr. HOLIFIELD. Was that before or after Mr. Gordon had turned in a written report to Major Mattina indicating the deletion of these valves?

Mr. KING. That was before. Mr. Gordon did not arrive, or I do not believe Mr. Gordon was engaged as an inspector until the middle of April or slightly before.

Mr. HOLIFIELD. At that time 75 percent of these convectors had been installed, in your opinion?

Mr. KING. That is an approximation.

Mr. HOLIFIELD. Upon your noticing this deletion, what action did you take?

Mr. KING. I subsequently reported the matter to Mr. Huston. Mr. Huston followed through with a letter directing the contractor to install the valves on the convectors.

Mr. HOLIFIELD. Did that occur prior to Mr. Gordon's arrival, Mr. Huston?

Mr. HUSTON. I do not recall the exact date of Mr. Gordon's arrival, but my letter to the contractor was dated April 7, 1951.

Mr. HOLIFIELD. What is the date of that? That was in 1950?

Mr. HUSTON. 1951.

Colonel FOOTE. 1951.

Mr. HOLIFIELD. Can you explain to this subcommittee why you didn't notice such a deletion until 75 percent of those convectors were installed?

Mr. KING. Mr. Chairman, I arrived in Alaska on the 27th day of March 1951. The 28th day, if I may go through the chronological steps, I processed, and on the 29th up to 31st I was engaged in familiarizing myself with the various contracts which were to be under my supervision, and therefore I was unable to report the matter until I had officially taken over, as I have so stated previously.

Mr. HOLIFIELD. All right. Apparently your starting date on the job would absolve you from any responsibility for the several months of construction which had occurred prior. Who was your predecessor?

Mr. KING. I do not believe, according to the records, that there was any zone system at the time, I believe there was a different type of organization and inspection. I believe Mr. Huston could answer that.

Mr. HOLIFIELD. Mr. Huston, you were resident engineer during the time of this construction. What type of inspection did you have at that time?

Mr. HUSTON. Under contract DA–48, I had one plumbing inspector and six construction inspectors.

Mr. HOLIFIELD. What was the plumbing inspector's name?

Mr. HUSTON. Weakley.

Mr. HOLIFIELD. Had he made any report to you on these valves?

Mr. HUSTON. No, sir. No, sir; the plans did not show valves on the convectors. The plans showed valves on the radiators. My in-

spectors and myself could probably—no; I can't say that came to my personal attention prior to that time. But my inspector and the contractor both felt, no doubt, that no valve was intended on the convectors and it was not until the detailed examination of the specifications that we felt one should go on there.

Mr. HOLIFIELD. The specifications, however, did call for a valve?

Mr. HUSTON. Yes, they did; and that is still a matter of argument over the contract.

Mr. HOLIFIELD. You have insisted that they install those valves?

Mr. HUSTON. Yes.

Mr. HOLIFIELD. They have been installed and are now a matter of claim by the contractor?

Mr. HUSTON. Yes, sir.

Mr. HOLIFIELD. As to the additional expense of installing them?

Mr. HUSTON. That is true.

Mr. HOLIFIELD. Now it therefore becomes a matter of litigation as to whether that cost will be allowed or not.

(No response.)

Mr. ROBACK. What was the responsibility of the district office with regard to the absence of that detail of a valve on the drawing there? The requirement in the specifications was, as you well know, to supply each unit of radiation and convection with a valve, and the legend in the contract is to the effect that anything mentioned in the specification and not shown on the drawing, or shown on the drawing and not mentioned in the specification, shall be of like effect as if it had been mentioned in both. There is a matter of interpretation of the contract there. What was the responsibility of the district engineer's office?

Mr. MCCASKEY. May I break in here? Those questions are referred to the legal branch, and, of course, a determination is made. Now, the basic point to be decided by the Claims and Appeals Board on this question of radiator valves is the very one you have brought up, and which I cited in the findings regarding the responsibility of the contractor for installing the valves, regardless of the omission of the valve from the drawing.

Mr. ROBACK. My question was directed to the relationship of the interpretation of the inspector, who didn't see the details, it was testified, and the requirement of the contract. Now, was the district engineer's office waiting until a claim was put in to relate the requirements and specifications to a detail on the drawing?

Mr. MCCASKEY. I don't quite understand your approach, Mr. Roback.

Mr. HOLIFIELD. Will you please rephrase your question and make it a little shorter.

Mr. ROBACK. It was testified that the inspector was unaware of this requirement, that he didn't see the detail on it. Is that correct?

Mr. HUSTON. What was the question?

Mr. HOLIFIELD. Will you read the question?

(The question was read by the reporter.)

Mr. HUSTON. The inspector, of course, saw the details in the plan and had in his possession the specifications.

Mr. ROBACK. The question is, Was it up to the inspector to interpret these specifications?

Mr. HUSTON. Basically the inspector's job was to see that the job was built according to plans and specifications. If the contractor disagrees with the inspector's interpretation of the plans and specifications, it goes to me for decision, and if we still can't agree, it goes to the district engineer for decision.

Mr. ROBACK. It appears that what the Claims Board, or Appeals Board, has to decide now is what was left to the inspector on the job to decide, without any intervention by the district office; is that correct?

Mr. MCCASKEY. I do not take that approach. You may take that approach, but the contractor has certain requirements, and I think I had a discussion with Mr. Thoma about that very point a year ago when he was up here. It is my belief that the contract requirements must be met, regardless of the inspector's particular idea or concept in looking at something in the specifications and taking a personal view of the matter.

Mr. ROBACK. I am not arguing the legal aspects. I merely want to bring out the fact that it was stated here that the inspector didn't see the requirement for a valve on the convector in the contract plans.

Mr. HUSTON. No; he did not see it; it was not required in the plan.

Mr. ROBACK. And at a later date the interpretation is submitted to the Appeals Board in Washington that it was required. Now, what was the responsibility of the district engineer's office, long before the claim came in, to see that the inspector knew what he should be looking for?

Mr. HUSTON. It was pointed out to the inspector that the specifications required that the valve go in.

Mr. ROBACK. Therefore, why take so long a time before the matter is reported to the office that these valves are not being installed?

Colonel FOOTE. May I attempt to clarify this apparently confused situation? And I wish, Mr. Huston, you would correct me if I have gained an erroneous impression. I believe, sir, that prior to Mr. King's inspection and prior to the raising of the issue regarding the valves on the convectors, that the field inspection personnel were of the impression that the valves were not required from their study of the plans and from their apparently inadequate knowledge of the specifications.

Mr. ROBACK. Therefore, I am raising the question, Colonel Foote: What was the responsibility of the district engineer's office in advising or educating inspectors as to what they should be looking for? It is a matter, perhaps, of supervision?

Colonel FOOTE. I should say that the responsibility of the district engineer is complete in that respect. It is his responsibility to have on the job competent and informed inspectors.

Lieutenant Colonel FARRELL. Mr. Chairman, we have an emergency phone call; may Mr. Gilpin and I go out and take it?

Mr. HOLIFIELD. You may. We will proceed with other witnesses in your absence.

(Lieutenant Colonel Farrell and Mr. Gilpin withdrew from the courtroom.)

Mr. GEORGE. I would like to clear up a point at this time, which I think might be of help to the chairman and the judge. In executing plans and specifications, it is not incumbent and it is not a solid rule of practice that what is called for in the specification need neces-

sarily be shown on the plan. That is a rule of the contracting game.

Mr. LANHAM. Then your contract is even more specific, because it says if something is omitted in either the specifications or the plans, but is shown in the other, then it is to be considered as if it were in both. I think your counsel is entirely right, that the question before the claims court is whether or not the contract, either in the specifications or the drawings, shows that the valves are there.

Mr. MCCASKEY. That is right, and the field people of the contractor I feel had that argument at the field level before this matter arose, that they interpreted it a certain way on the materials and had instructed their own people as to the valves. Testimony came out that it was in dispute, showing it was probably discussed in the field, and the contractors feel quite strongly about it, they are of the opinion that it is not shown in the contract. This same dispute now exists on contracts 48, 61, 135, and 193.

Mr. ROBACK. If this dispute had been resolved before the installations, possibly this claim would not have arisen.

Mr. MCCASKEY. No; I don't think so. I think it has been a dispute all down the line.

Mr. HUSTON. The contractor didn't act on my original order to install the valves; he refused to install them until I got the contracting officer to so direct.

Mr. DEMARAS. Mr. Chairman, may I ask a question?

Mr. HOLIFIELD. Go ahead.

Mr. DEMARAS. At any time, were any orders issued to contractors, on the contracts in question, to refrain from installing any further convectors until they complied with your directive to install valves on the convectors? What I am trying to say is, did you stop him from continuing work which you had concluded was not in accordance with the specifications?

Mr. HUSTON. No.

Mr. DEMARAS. There was never any action taken toward that end?

Mr. HUSTON. He went ahead on his own risk.

Mr. DEMARAS. But after this became known to you, did you at any time tell him to "Stop at this point, don't do any more of this work until you do it in line with specifications"?

Mr. KING. No. The contractor was repeatedly informed that if he persisted in installing the convectors without valves, the work would not be approved, and it would not meet the specifications, and we would not give him any credit, progress credit, if he persisted in the installation without meeting the specifications.

Mr. HUSTON. The subject of valves came up early.

Mr. HOLIFIELD. Will you give us a chronological record of this field matter for the record, beginning with your first knowledge of it, indicating the dates and your letters in regard to that, Mr. Huston?

Mr. HUSTON. I don't know whether I can completely from the records I have with me, but on April 7 it was reported to me by Mr. King that valves were not installed on the convectors and that they should be, we felt, because they were required in the specifications.

Mr. HOLIFIELD. May I ask Mr. King at this time, was that a result of Major Mattina's referring the matter to you and calling your attention to it, or was it your own personal observation?

Mr. KING. It was my own personal observation from my cursory inspection.

Mr. HUSTON. I wrote a letter to the contractor on April 7.

Mr. ROBACK. On April 7, or April 9? This is dated April 9.

Mr. MCCASKEY. It is dated April 9. He probably wrote it on the 7th, but it did not go out until the 9th.

Mr. HUSTON. Bear in mind that this was the 7th of April, and naturally we were not going to stop further installations, because the buildings were ready to occupy, the first one was occupied on the 18th of the following May. We weren't going to stop installation of the heating system, to get this resolved, it hasn't been resolved yet. There is a lot of correspondence on the valves. I reported to the district engineer the action I had taken toward the contractor and he supported my stand on it. There are repeated directives to the contractor to the effect that he should install the valves, and at long last he started the actual installation.

(Mr. Gilpin and Lieutenant Colonel Farrell returned to the courtroom at this point.)

Mr. HUSTON (continuing). The contractor submitted a valve for approval on August 13, and on approximately the 10th of August the contractor notified us he was proceeding with the installation of the valve.

Mr. HOLIFIELD. What date does your record show Mr. Donald F. Gordon was hired as a mechanical inspector?

Mr. HUSTON. I do not have that record with me.

Mr. KING. It can be furnished.

Mr. ROBACK. Mr. McCaskey, from the legal point of view, do you consider the writing of the specifications on the installation of the cut-off valve was ambiguous?

Mr. MCCASKEY. No; I do not believe it was ambiguous. Of course, I have got to look at it in the light of subsequent developments. As you may or may not know, the contractor in an endeavor to prove the point which Mr. Roback mentioned, to wit, that the specifications were ambiguous, contacted the architect-engineer on his own initiative, and according to correspondence from the contractor received an opinion from the architect-engineer that he, the AE, not intended that a valve to be installed on the convectors, that it was an austere type of construction, that he had been directed to design an austere type of family dwelling so that the Government might save money, pressure was on at that time for a cheap type of house, meeting the minimum requirements, and that he felt that he could leave the valve off the convectors and still design a simple and adequate job, I really think, and my own personal opinion is that had the architect-engineer been on his toes, so to speak, he probably would have deleted that requirement from the specifications, had he realized what he was doing. I think personally that an error was made by the architect-engineer in leaving that particular sentence in the specifications.

Mr. GEORGE. I would like to make a statement in that regard, when you are through.

Mr. MCCASKEY. Go right ahead.

Mr. GEORGE. I think this is the proper time to go back and make the statements that we made here yesterday as to how the supervision on an AE (architect-engineer) contract is performed. We give an architect-engineer general criteria to follow in making his plans and specifications. We watch his progress as he proceeds. There is a review made of the plans at the preliminary meeting, and the specifications,

in which the using service, and district engineer's forces, and a higher echelon in the corps sit down in review. Final plans are then prepared and final specifications, subsequently followed either by careful check of the documents by governmental agencies or by final review. In this particular case, because of the speed of the job, final review was involved at a conference, a conference with everyone sitting around the table. It is that document that holds, not any opinion of anyone up until that time. These plans and these specifications are reviewed. The personnel involved, mechanical or electrical, whatever you have, take the component parts of the plans and specifications and get in a corner and agree that that is what is wanted. I didn't personally sit in this. I have to accept that as the intent of the Government.

Mr. LANHAM. Well, it seems to me the job of giving this information to the contractor was the architect-engineer's, and it seems to me I wouldn't use him any more. I certainly would not personally.

Mr. HOLIFIELD. Has the architect-engineer furnished the contractor with a written statement to the effect that he did not intend to have valves on the convectors?

Mr. MCCASKEY. I do not believe so, sir. I tried to get that at the time I made my findings.

Mr. HOLIFIELD. But that is the claim of the contractor, that he had conferred with them and had received that permission?

Mr. MCCASKEY. Yes. He has said that in correspondence with the district engineer, and I believe he also maintained it with the division office at Portland.

Mr. GEORGE. The architect-engineer is Foss & Malcolm, of Juneau. Their mechanical sub is Mr. Donald Kroeker.

Mr. LANHAM. Who wrote this letter? Who gave the information to the contractor that he did not intend to include these valves, that it was an austere job and he didn't intend to write the valves in the specifications?

Mr. MCCASKEY. That is the contractor's word to us, naturally.

Mr. LANHAM. But who did he say told him?

Mr. MCCASKEY. He simply states the architect-engineer. What individual in the organization is hard to say.

Mr. LANHAM. Have you investigated to find whether the architect-engineer did that?

Mr. GEORGE. I can answer that. We have, and the mechanical engineer, a subman for the architect-engineer, did make such a statement, and he was entirely out of order in making it.

Mr. LANHAM. Was he discharged?

Mr. GEORGE. No, sir; he was not discharged. He was not under contract with the Government directly. Our contract was not directly with him, it was with Foss & Malcolm, he was a subcontractor of Foss & Malcolm.

Mr. LANHAM. Did he sign the letter?

Mr. GEORGE. I do not believe there was any letter signed.

Mr. MCCASKEY. No, sir.

Mr. GEORGE. It was a personal statement. He cannot commit the Government in his capacity.

Mr. LANHAM. What I am trying to get at is, it seems to me your architect-engineers have double-crossed you, putting it in plain language.

Mr. GEORGE. In plain language, that is just exactly the way we look at it, and we are very irritated about it.

Mr. LANHAM. I would be worse than irritated about it.

Mr. HOLIFIELD. Of course the subcommittee certainly is not passing judgment on this. It is not our intent in any way to jeopardize the Government's case. We feel from reading the specifications and from the law of contracts in contracting that the specifications are the major control, and the specifications are very plain that any radiation or convection device shall have a valve. That certainly would be my personal position after reading the specifications.

Mr. MCCASKEY. I feel it is an unreasonable claim by the contractor as the contract is written, and I think the board of appeals will so find.

Mr. HOLIFIELD. The subcommittee noted on its inspection trip yesterday, with approval, that those valves had been installed according to your direction, Mr. Huston.

The next subject under inquiry is the substitution of "Allianceware" bathtubs which do not meet the Federal specifications as called for in the contract specifications as well as the installation of plumbing fixtures and fittings therefor which were manufactured or assembled by two or more manufacturers, under contracts DA–48 and 61.

In connection with the contracts afore-mentioned, we would like to have the explanation of the responsible person as to why these tubs were allowed to be installed, in view of the fact that the contract called for fixtures and fittings from the same manufacturer. I will address that question to you, Colonel Foote, and you can refer it to anyone on your staff, if you so desire.

Colonel FOOTE. I would like Mr. Gilpin to initially respond to that question.

Mr. GILPIN. Mr. Chairman, I think the basis of your question should be answered by the resident, who had the first information on the submission of the bathtub by the contractor in his brochure.

Mr. HOLIFIELD. Mr. Huston, how far had the construction progressed on contracts DA–48 and 61, when you brought this matter to the attention of the contractor?

Mr. HUSTON. Tubs were installed in 35 buildings out of 51. The specifications required that the bathtub fixtures would be of one manufacturer or assembly. But if the Crane Co. assembles fixtures, tubs, and so on in one brochure, it is assumed he is assembling all that material, the material doesn't have to be actually manufactured by one manufacturer, according to our specifications.

Mr. HOLIFIELD. Was there an Allianceware tub contained in your Crane brochure?

Mr. HUSTON. Yes, sir.

Mr. HOLIFIELD. Is what is contained in that brochure printed in there originally, or is it pasted in as an afterthought?

Mr. HUSTON. This brochure was assembled by Crane. There is an Allianceware cut.

Mr. HOLIFIELD. When was it assembled?

Mr. HUSTON. I have the dates on the front of the brochure.

Mr. HOLIFIELD. Was this brochure submitted to you originally, or after this Allianceware tub had been installed?

Mr. HUSTON. No; it had been submitted originally and was approved before the tubs were even in. You will note there were no dimensions of the tub shown in the cut. Still, it is the contractor's

responsibility to see that it meets the specifications on size and length of the tub.

Mr. HOLIFIELD. As I understand it, those specifications were not met in view of the fact that the tub installed was about 5 inches less in depth than the specifications called for.

Mr. HUSTON. The tub was 1 inch less in depth than called for. The specifications, 542, say anywhere from 15 to 16 inches inside depth. The Allianceware tub is 14 inches deep.

Colonel FOOTE. May I suggest that Captain Coleman be permitted to respond in part to this point? I believe he can clarify it.

Mr. HOLIFIELD. Yes. Captain Coleman will be sworn.

Mr. HUSTON. The specifications we had in the Federal specifications, the job specifications, WW-P-542, give the size of the pressed metal tub.

Mr. HOLIFIELD. What are those dimensions?

Mr. DEMARAS. Inside depth 15 to 16 inches; outside height, 16 to 17 inches; outside length, 60 inches; outside width, 30⅝ to 32 inches.

Mr. HUSTON. That is right.

Mr. HOLIFIELD. We have in our table a comparative list of dimensions of the bathtub installed, the inside depth being 12⅝ inches and the outside height 13½ inches, showing a deficiency there of 2⅜ inches minimum and 3⅜ inches maximum in the depth, and a 2½ inch minimum, or 3½ inch maximum deficiency in the outside height. This table was based on measurements made by Mr. King, your zone engineer, at the request of the General Accounting Office, in August 1951.

Mr. HUSTON. Is the inference there, sir, that they weren't measured by us until August?

Mr. HOLIFIELD. We do not make that inference. Our record shows that our table was prepared in August of 1951 at the request of the General Accounting Office personnel of Mr. King, and that the measurement was made by Mr. King. That is all. There is no inference made as to date. When was the date, I might ask, when you first noted the deficiency and made a written record of it?

Mr. KING. If I may answer that, sir, I believe it was in the first inspection made by Mr. Loughlin of the district mechanical engineering department, Captain Coleman, and Mr. Donald F. Gordon, which is a matter of record. I believe, I am not sure of the exact date, it is a matter of record here, but I believe it was around the 14th of April. (Witness refers to file of papers.) It was the 19th of April.

Mr. HOLIFIELD. Is there any record of your knowing of this deficiency before the team of which you were part, Captain Coleman, made your record?

TESTIMONY OF CAPT. JOHN H. COLEMAN, CORPS OF ENGINEERS, UNITED STATES ARMY, TECHNICAL CONTROL SECTION, CONSTRUCTION DIVISION, OFFICE OF THE DISTRICT ENGINEER, ALASKA

Captain COLEMAN. No, sir; we didn't catch it at that time. We caught it that the tubs were not of Crane manufacture. In checking the Allianceware tubs we found they also were too small. That was about a week later.

Mr. DEMARAS. What date was that, when you found the tubs were too small?

Captain COLEMAN. Approximately about a week or two after the original inspection that was made in April.

Mr. DEMARAS. April what?

Captain COLEMAN. Nineteen April 1951. It took us a while to get the literature.

Mr. DEMARAS. I am talking about the dimensions that didn't meet the Federal specifications. It was in April 1951 that you found they didn't meet specifications?

Captain COLEMAN. May.

Mr. HUSTON. May I quote my specifications, Mr. Chairman?

Mr. HOLIFIELD. Yes, sir.

Mr. HUSTON. Paragraph 1.03 of the specification regarding manufacture says, and I quote:

> All materials of similar class or service shall be of one manufacture.

All materials of similar class. All bathtubs shall be of one manufacture, all lavatories shall be of one manufacture. It doesn't necessarily mean that within a room the bathtub, the lavatory, and so on, will be of the same manufacture. For maintenance purposes we were trying to get uniformity, that was our interpretation of the specifications. We accepted Crane's brochure as submitted. Crane didn't give us the sizes, but it still was the contractor's responsibility to furnish us a tub of the dimensions provided in the specifications. We didn't discover the tubs were undersize until after this joint inspection.

Mr. LANHAM. What did you do about it then?

Mr. HUSTON. We notified the contractor, of course, that it wasn't up to size. He argued with us to the effect that a subsequent specification, not cited in our job specification, was complied with, and he felt that this subsequent specification should hold on this job.

Mr. LANHAM. What do you mean by "subsequent specification"?

Mr. HUSTON. A specification which was published 2 or 3 months later, after the job was started, would permit the use if it was cited in the job specification, would permit the use of this Allianceware tub in all respects.

Mr. LANHAM. By whom was that specification issued?

Mr. HUSTON. It is a Federal specification. But our contention is, has been all the way through, that since this later specification was not cited, it could not be used on this contract. The job specifications do not say that the job will be built in accordance with current Federal specifications; we named the particular specification that we wanted followed.

Mr. LANHAM. Is it still in controversy, then?

Mr. HUSTON. No; it is settled and the contractor has offered us credit for the difference, in fact I think it is already paid.

Mr. HOLIFIELD. Do you think the contractors offered you an adequate credit?

Mr. HUSTON. I think so.

Mr. HOLIFIELD. How much did it amount to per tub?

Mr. HUSTON. Four dollars and thirty-two cents, I think.

Mr. HOLIFIELD. Is that a fair representation of the difference in cost of the two tubs to the contractor and the difference in weight between the cast-iron and the poured-metal tub?

Mr. HUSTON. That has been gone into quite thoroughly by the estimating branch of the district office, and I think they considered the original cost of the tubs, the difference in freight, the weight, and everything about it.

Mr. GILPIN. May I add something? I think we are getting confused on the various kinds of tubs. I think in your first statement, you made a statement that the difference in tubs was 5 inches, Mr. Chairman.

Mr. HOLIFIELD. After consultation with my table—that was from memory—I revised that.

Mr. GILPIN. May I just speak off the record?

Mr. HOLIFIELD. Close the record.

(Record closed; record opened.)

Mr. HOLIFIELD. Let the record show that the differences in size between the bathtubs installed and the bathtubs called for under Federal specifications WW–P–542 are as indicated by the table which the chairman previously read into the record, which was prepared on measurements made by Mr. King in August of 1951.

Mr. GILPIN. Mr. Chairman, I would like also to clarify the statement you have just made as to comparison, in trying to ascertain whether the credit of the contractor was equitable, as to the comparison between the tub actually furnished and the tub that was required on the specifications. I noted in your statement that you asked for a comparison between a cast iron tub and the weight thereof. The specification as put out for these quarters under contracts 48 and 61 permitted the contractor to install a pressed steel tub and he was not required, except at his option, to install a cast iron tub, so I think the record should be clear that the comparison is made between the sizes of two pressed steel tubs, and that cast iron tubs are not in the consideration.

Mr. HOLIFIELD. I am aware of that alternative provision, and I am somewhat at a loss to understand why that particular formed metal tub was allowed to be substituted for a cast iron tub. Is it generally considered in the trade that they are of equal value?

Mr. GILPIN. No, sir; I think that is obvious.

Mr. HOLIFIELD. I was somewhat concerned over the point that the design engineering department specified that kind of choice.

Mr. GEORGE. I can answer that question, Mr. Chairman. We received this directive, as I explained yesterday, on these houses as the result of extreme concern at the most high levels in the Defense Department. Secretary Johnson, at the time Secretary of Defense Johnson, and Secretary of Air Symington were alarmed about the housing situation and their inability to procure sufficient numbers of houses for their needs at a reasonable cost, and every effort was made at that period to reduce any extravagance that could be reasonably reduced and get austere. The directive we received, as the result of many, many conferences, I am sure, at the Washington level, was specific on this matter, and they allowed a differential. Why, I don't know. It is obvious the one is cheaper than the other. Maybe they did it from the standpoint of possible supply. The urgency was there for living quarters, and the urgency was there also for cheapness of construction from a cost standpoint.

Mr. ROBACK. The cost was not reflected in favor of the Government, though, in the subsitution.

Mr. GEORGE. The contractor was absolutely within his contractural rights in furnishing the one he did, it was permitted by the specification.

Mr. HOLIFIELD. I think the subcommittee agrees on that point.

Mr. GEORGE. There is no question of a gyp on the part of the contractor on this point.

Mr. HOLIFIELD. The concern of the subcommittee is that your specifications allowed a substitution without including in that allowance a provision that in case a cheaper article was substituted, that the Government should get the advantage. I think that is the concern of the subcommittee.

Mr. GEORGE. Yes, if a smaller sized pressed steel tub, as against a larger sized pressed steel tub, was involved, but you have to take it on that basis, you couldn't take it on the basis of a cast iron tub.

Mr. THOMA. May I make a statement on the specification? One thing I think has been overlooked in the specification. It provides that plumbing fixtures shall be all of one manufacture, a manufacturer of established reputation, etc. In this particular case, the contractor picked Crane bathtubs, Oxford lavatories, American Standard waterclosets, and Youngstown kitchen sinks. Inasmuch as they should all be of one manufacture, isn't it a fact that the kitchen sinks on Contract DA–48, as well as the bathtubs, should be of Crane manufacture? Crane does not manufacture a formed-metal tub, their warehouses do handle Allianceware, but they——

Mr. HOLIFIELD. The statement was made while you were out of the room, Mr. Thoma, by Mr. Huston, that their interpretation of the specifications was not the same as your interpretation, that their interpretation was that all bathtubs should be of the same manufacture, that all lavatories should be of the same manufacture, and that all wash basins should be of the same manufacture. That is the interpretation of the engineers.

Mr. THOMA. May I ask this one question: What about the plumbing fixtures in Contracts DA–135 and DA–193? Are they all of different manufacture, the bathtubs of Crane, the waterclosets of American Standard, and the kitchen sinks of something else?

Mr. HUSTON. I do not think that has any bearing on this. We are talking about Contract 48.

Mr. MCCASKEY. That has no bearing.

Mr. ROBACK. Mr. McCaskey, do you want to, are you buying that interpretation? Do you want to be circumscribed by that interpretation of the specifications, that the contractor can install all of one type of lavatory, all of one type of bathtub, all of one type of fixture?

Mr. MCCASKEY. I think that is a reasonable interpretation of the specifications, yes.

Mr. HUSTON. May I quote further from the specifications, sir? Under plumbing fixtures, paragraph 1.06:

> All fixtures shall be of one manufacturer, a concern of established reputation, which manufactures or assembles plumbing units and assumes full responsibility for each and every unit.

Crane in this case assembled units, they submitted a brochure, they said they would guarantee installation, and they submitted this to us for approval.

Mr. HOLIFIELD. At this time we are going to recess. We will reconvene at 2 p. m.

(The hearing was recessed at 12:05 noon, September 9, 1952, to be reconvened at 2 p. m. the same day.)

(The meeting was called to order by the chairman, Mr. Holifield, at 2 p. m., September 9, 1952, in the courtroom, Federal Building, Anchorage, Alaska. All persons who had been present at the morning session were again present, with the exception of Lieutenant Colonel Farrell and Mr. McCaskey.)

Mr. HOLIFIELD. Mr. Huston, when you said that "they" submitted, you meant the contractor submitted the Crane brochure?

Mr. HUSTON. The contractor submitted the Crane brochure, that is it. However, Crane did assemble the brochure, this is their own assembly.

Mr. HOLIFIELD. Is that an assembly of one of their wholesale distributors, rather than of Crane Co. itself?

Mr. HUSTON. The heading is "Crane Co. display room, Madison, Wis." I do not know where they had offices.

Captain COLEMAN. Chicago.

Mr. HUSTON. Mr. Chairman, you asked me this morning for the dates of employment of Mr. Gordon.

Mr. HOLIFIELD. Yes, sir.

Mr. HUSTON. I checked the payroll records. He entered on duty April 9, 1951, Monday, and terminated September 19, 1951. His first written report was dated April 12, and of course that is understandable, because it took him a couple of days to get oriented on the job. This is a standard form of daily report that most inspectors submit to the resident engineer. Most of the items are on setting convectors, setting bathroom fixtures, setting laundry tubs and fixtures, hooking up hot water tanks.

Mr. HOLIFIELD. Previous to his submission of that report, you had not had such a report submitted by Mr. Weakley, apparently.

Mr. HUSTON. I can check their daily reports, I have them with me. My first notice to the contractor on the convector valve was April 7. Mr. Gordon entered on duty on the 9th.

Mr. HOLIFIELD. It had not been a procedure of your inspectors to submit written reports on the plumbing?

Mr. HUSTON. Yes, on all phases of plumbing.

Mr. HOLIFIELD. They just failed to notice all these different discrepancies which Mr. Gordon noticed?

Mr. HUSTON. That is probably true. The convector valves came to the personal attention of Mr. King.

Mr. HOLIFIELD. I would like to question you regarding your method of inspection of material and unfinished articles which are incorporated in the work outside. Is it your procedure to wait, ordinarily, until after those articles are installed to inspect them, or do you inspect them at the time of procurement, or upon their arrival at destination, prior to installation? What is your procedure?

Mr. HUSTON. We didn't inspect these tubs prior to installation, but the procedure today is, we inspect all materials we have access to when they hit the contractor's warehouses, before he even uncrates them, if possible, to save him from recrating them.

Mr. HOLIFIELD. Then section D of the contract, page 5, was not carried out by your department, the contract with the Patti-MacDonald Construction Co., DA–48?

Mr. HUSTON. We didn't inspect it at the time of manufacture.

Mr. HOLIFIELD. You have revised your procedure now to follow out in effect that provision of the contract?

Mr. HUSTON. Yes. The first time we have access to the fixtures is when they arrive at the job site, and we try to inspect them before they are uncrated, to save the contractor recrating it and the work he might have to go to. But we don't make any inspection of this material at the point of manufacture.

Mr. HOLIFIELD. Mr. Roback wants to ask a question.

Mr. ROBACK. What is the approximate spread in cost between the Allianceware bathtub and a cast-iron bathtub?

Mr. HUSTON. I do not know at the moment. Do you, Captain Coleman?

Captain COLEMAN. No, sir. Several things have to be taken into consideration when you start talking about cast-iron bathtubs versus steel. The freight on the cast iron is two to three times as expensive, due to the extra weight of the cast-iron tubs. The labor also is more expensive, because it takes from three to four plumbers to handle the cast iron, while two can handle the pressed steel.

Mr. ROBACK. Would the spread be as much as $20 in this case?

Captain COLEMAN. Yes, possibly more.

Mr. ROBACK. Would you say that in view of the fact that there was an option to the contractor to use a formed metal or pressed metal tub as an alternative to the cast-iron tub, and in view of the fact that this was the cheapest, apparently the cheapest tub would be selected, and there is presumably a wide range in the prices of pressed metal tubs, that that clause was really a joker in the contract?

Captain COLEMAN. No, I wouldn't say it was a joker. I would say it served no purpose in being there, though.

Mr. ROBACK. It wasn't advisable in the contract, the way it was written?

Captain COLEMAN. I do not see where it makes any difference whether it was in or out. It gave the contractor his choice. Of course any reasonable person would know the contractor would furnish the steel tub. I can't see where it hurt the contract a bit, or helped it a bit.

Mr. ROBACK. In the light of the experience which you have had with these tubs, if you had the job of revising the contract today, would you change that requirement as it now stands?

Captain COLEMAN. If I personally did, I would leave the words out that required a cast-iron tub. However, we left it in our new contracts, I do believe, at the insistence of a higher headquarters.

Mr. ROBACK. Do you have—maybe Mr. Gilpin could answer this—do you have any reason to believe the original bids were offered on the basis of cast-iron tubs?

Mr. GILPIN. I have no way of telling that, except just as a matter of looking at the costs. Unless a man might have a batch of cast-iron tubs on hand, I see no reason why he would put it in.

Mr. ROBACK. Were any cast-iron tubs installed in any family quarters anywhere in the recent contracts?

Mr. GILPIN. Yes, there were cast-iron tubs installed in 135, isn't it?

Mr. HUSTON. Under 135 and 193.

Mr. ROBACK. So it wouldn't be unreasonable to assume that possibly the original bids had in mind the cast-iron tubs?

Mr. GILPIN. I don't think that follows at all. The last two contracts specified cast iron only, they did not permit pressed steel, and there was

nothing else for them to bid on. So I don't think that is obvious at all.

Mr. LANHAM. When it was figured by the engineers in their fair-cost estimates, did you figure cast iron?

Mr. HUSTON. I had nothing to do with making the estimates.

Mr. LANHAM. Could you answer the question as to whether the cost of a cast-iron tub was figured, rather than of a pressed metal?

Mr. HUSTON. I don't know, I couldn't answer that.

Mr. LANHAM. Is anyone present here from the Estimates group? Could you furnish Mr. Huston the information?

Captain COLEMAN. I looked at one estimate that did have a cast-iron bathtub estimated by the Estimating Section. However, the man that figured it did not have too much experience, and it probably never dawned on him that a cast-iron tub was a lot more expensive than the pressed-steel tub.

Mr. LANHAM. Isn't it true that the steel tub is satisfactory; is very satisfactory?

Captain COLEMAN. Yes, sir.

Mr. LANHAM. If you can save money on transportation to Alaska, wouldn't it be sensible for the Government to use a steel tub, if it can be installed more cheaply and if it is as satisfactory?

Captain COLEMAN. Yes, sir. In our new housing, 1952, we have specified formed-metal tubs.

Mr. ROBACK. Can you tell us the basis for making the estimates on the adjustment in favor of the Government, in regard to the substitution of the pressed-metal Allianceware tubs?

Captain COLEMAN. Yes, sir. We used Crane's catalog and figured it out. We took one price from the other price, using the full height tub as compared to the lower height tub, plus the difference in freight.

Mr. ROBACK. You are talking now about pressed-metal tubs?

Captain COLEMAN. Yes, sir. We didn't consider cast iron at all.

Mr. ROBACK. You assumed that the contractor wouldn't exercise that alternate on the job?

Captain COLEMAN. No, sir.

Mr. LANHAM. He would be crazy if he didn't.

Mr. ROBACK. The question is, Judge, that we are trying to arrive at some fair figure of adjustment in favor of the Government. Now, the question is whether the Government agency, in trying to estimate what it ought to recover, should ignore the option in the contract to use the cast iron, on the one hand, or the pressed metal, on the other hand.

Colonel FOOTE. I submit, sir, that it was not at the Government's option, it was the contractor's option to select whether the tub would be a cast-iron or a pressed-steel tub.

Mr. ROBACK. You are in fact determining what the contractor's option is.

Colonel FOOTE. No; I am merely trying to point out that it was not the option of the United States to tell the contractor under the specifications as written whether the tub would be cast iron or pressed steel, because it was the contractor's option to select which of the two he would furnish.

Mr. HOLIFIELD. I think that is a fair statement, Colonel.

Mr. DEMARAS. May I ask a question? The invitation to bid allowed an option on the part of the bidder in developing his bid as to whether he would furnish a cast-iron tub or a formed-metal tub. It has

been testified here that the cast-iron tub is much more costly to install than a formed-metal tub. Yet there was no provision, as I understand it and as I have read it in the invitation to bid, which would require the bidder to indicate which option he was exercising or what his bid included at the time of bidding. Am I correct in that so far, Colonel?

Colonel FOOTE. I am not familiar with the details.

Mr. GEORGE. I believe that is correct.

Mr. DEMARAS. Accordingly, then, I ask, do you know, or is there anything of record in the abstracts of bid or at the time of acceptance of this bid, as to what kind of tub the Government was going to get, other than a presumption?

Mr. GILPIN. At that time there didn't even have to be a presumption, because we didn't know what he was going to furnish; there was nothing requiring that.

Mr. DEMARAS. Then you do know and were cognizant of the fact that there is a variance between the two alternates in price?

Mr. GEORGE. There wasn't an alternate.

Mr. DEMARAS. Oh, yes; there is.

Mr. GEORGE. It is an option.

Mr. DEMARAS. All right, there was an option. He did not designate the type of tub he was going to deliver.

Mr. GEORGE. He wasn' required to?

Mr. DEMARAS. He wasn't required to.

Mr. GEORGE. That is right.

Mr. DEMARAS. Don't you think that one bidder may have figured the lower priced tub, while the higher bidder, in the absence of a qualification, maybe his bid was high by virtue of the fact that he thought you wanted first-line tubs in here?

Mr. GEORGE. When the specification calls for either, if I were a competitive contractor, I certainly wouldn't figure the higher, if I wanted that job.

Mr. DEMARAS. We are haggling over the choice of words. What I am trying to bring out is the fact that in the invitation to bid you asked right off for two qualities of merchandise.

When the contractor bids, doesn't he have to specify the type he will furnish?

Mr. GEORGE. He isn't forced to.

Mr. DEMARAS. Then how is the Government going to know what it is getting?

Mr. GEORGE. We make the assumption he is furnishing the cheapest.

Mr. DEMARAS. I asked you at the outset if it was a presumption or assumption.

Mr. GEORGE. How do we know whether we are getting a cast-iron tub or pressed metal? We check his delivery against the specification, and that is all we have a right to do.

Mr. DEMARAS. That is way beyond the time he bids, or the time of the award of the contract?

Mr. GEORGE. That is right. And that is all we have a right to do; that is all the Government reserved a right to do.

Mr. ROBACK. To make the record clear, then, in figuring the adjustment to the Government on those tubs, the Government assumed the contractor would supply the absolute minimum to conform to the

specifications as the outside limits, rather than possibly a cast-iron tub?

Mr. GEORGE. I don't know what the point is, I am arguing——

Major HUGHES. I can answer that. That is correct. The difference in the two tubs, as Captain Coleman indicated, is figured on the pressed metal tubs. As far as the contractor is concerned, at the time of his bidding the Government was not concerned with what kind of tub the contractor would furnish, because we have given him an option—we will accept either; we are not concerned with what type he will furnish, as long as he meets the specifications for either of those two types. So we are not concerned with whether he is going to furnish a pressed-metal tub or a cast-iron tub.

Mr. DEMARAS. In the cost price there is a difference in the neighborhood of $30 to $40?

Major HUGHES. I do not know.

Mr. HOLIFIELD. I don't think we need to belabor this point further. It is evident that if there was a fault in writing the designs and specifications, it lay there rather than with the action on the part of the contractor. The only action on the part of the contractor that I see is reprehensible is that the formed-metal tub he furnished was not up to what was called for in the Federal specifications. I believe that has been well established in the hearings.

I think we should at this point go on to item No. 4, which is entitled, "Substitutions, Omissions, and Deletions on Waste and Vent System." Our report shows that the plumbing waste and vent system was not installed in accordance with the plans and specifications of contracts DA–48, DA–61, DA–135, and DA–193. By means of a comparison of the shop drawings of the contractor with the contract drawings on the plumbing installations, it was indicated that many substitutions, omissions, and deletions had been made by the contractors which resulted in considerable savings in material, labor, and freight. Notwithstanding this fact, the contractor's shop plans were approved by the district office without the execution of change orders amending the lump-sum prices, and as a result these savings accrued to the benefit of the contractor, rather than the Government. Mr. Huston, do you care to testify on that point? Is that charge accurate?

Mr. HUSTON. Sir, my only part in this was to transmit the contractor's shop drawings. The procedure is for him, when he wants a shop drawing approved, to send it to me, and I forward it on to the district office. That I did, and it was sent back to the contractor directly.

Mr. LANHAM. You did not make a recommendation?

Mr. HUSTON. I did not make a recommendation.

Mr. LANHAM. Do you, usually?

Mr. HUSTON. No.

Mr. LANHAM. Who does?

Mr. HUSTON. It is made in the design section, I think, in the district office.

Mr. LANHAM. The shop drawing changes are just forwarded by you?

Mr. HUSTON. They are forwarded by me; they are acted upon, approved or disapproved, in the district office.

Mr. LANHAM. You do not make any recommendation?

Mr. HUSTON. I do not make any recommendation. I do not consider that my duty. I haven't been required to do it. In this case, I sent the shop drawing in to the district office; it was approved and returned directly to the contractor, without coming back to me. The contractor then had an approved shop drawing in his possession. He presumed that that was what the Government wanted. Copies of that drawing were sent to my office, given to myself and my inspector. We figured that was what the Government wanted, and we proceeded on that basis. The responsibility for changes and the money value of any changes which the shop drawings might have had over the design drawings I didn't think was my concern. That is in the superior office.

Mr. HOLIFIELD. Whose concern is it?

Mr. HUSTON. I presume it was considered when the shop drawings were approved.

Mr. HOLIFIELD. Do you have any comment, Mr. George?

Mr. GEORGE. Yes, sir; I do. The statement Mr. Huston made in regard to shop drawings is generally the procedure. Sometimes the shop drawings get to my particular shop, which concerns the engineering; sometimes they don't. In regard to contract 48——

Mr. HOLIFIELD. Now, where do they go if they don't go to your office?

Mr. GEORGE. They might be approved at either the residency level in some residencies, or they might be approved in the construction division of the district office, and in some cases they are approved through an AE (architect-engineer) arrangement directly.

Mr. HOLIFIELD. Now, you were going to tell us how this one was approved.

Mr. GEORGE. I want to make the record clear on this particular case, and I want to try to give to the subcommittee a fair and complete statement as to the points that are raised. On contract 48—and my statements that follow apply only to contract 48—there was a group of about six plans came in—I have the copy here that I believe is in controversy—all at one time, and they were approved by my office on the 13th of September 1950. They apply to contract 48. Three of these sets represent schematic drawings, in our parlance; they do not represent shop drawings. Three of them represent shop drawings. We place a stamp on a shop drawing approval, stating that in our opinion they meet the specifications as presented, but it does not relieve the contractor from furnishing the material called for by the plans and specifications; he still has an obligation. They come in in volume; they are checked, I would say, reasonably carefully. The circumstances resulting in this particular instance—and I want to emphasize in this particular instance—were these: The chief of this section to whom these drawings were referred was taking the body of his deceased wife to the States. One of his assistants, who is a qualified engineer of about age 35, mechanical, took over the job in his absence. His forte was not plumbing; his forte was refrigeration, ventilation, and that sort of thing. I want to make this statement also for the record, that in the plumbing business there is a variation in what is acceptable. Different parts of the country will allow different things. There are standards, true. In checking these particular drawings, this individual agreed to certain things which the contractor showed which were not in conformance with the design drawings.

Mr. LANHAM. Who was this individual?

Mr. GEORGE. Mr. Dunway.

Mr. LANHAM. Is he available now?

Mr. GEORGE. He is available. Mr. Dunway is a careful engineer; he has a reputation for not being careless. We regard him very well in our organization. We didn't know anything about this as individuals. I accept full responsibility for the instance. But at the time we knew nothing about it; they go through as a matter of routine. But when it came to our attention as the result of some inspectional checks, we immediately got out the files and were quite familiar with the instance. Now, I would like to define, so the record is clear, wherein they are not in agreement with the plans.

Mr. HOLIFIELD. Without going into detail, Mr. George, would you tell us, because we don't care to belabor this point.

Mr. GEORGE. No, but I think it is important, Mr. Chairman. In general, there is a similarity in the case of the vents on the tubs. I think in general they follow the plans. Now, the plans can be criticized in turn, by some of the codes in effect, that they are not as complete as codes tolerate or demand. In the case of the lavatories, there is a wet vent—not the best practice, but a practice that is also allowable in some places. There are on the plans and specifications in two cases, I believe, clean-outs specified: one at the base of the laundry tub and one on a horizontal run of pipe. The horizonal run of pipe clean-out was omitted by change order and is covered. While it is not in accordance with the plans, it is covered by a change order. The one on the tub was a faux pas, was a miss, on this man's part. There were, in addition to that, valves, shut-off valves, on half-inch pipe leading downstairs to the laundry tubs, two of which were in, two of which were not in. Those were missed. In the record it will state, I believe, that there might have been a clean-out on a waste pipe from the sink down. The specifications call for clean-outs on soil pipe and in the plumbing parlance, I think it is correct that such a pipe is not considered a soil pipe; soil pipe is more of the lavatory type. There is one other instance in which approval was given for the use of short-bend fittings, where broad-bend fittings should have been put on.

Now, that is it; in total and substance, as I have been able to analyze it, that is the history. It has subsequently been discovered and found, prior to any investigation from an outside source, and the contractor has been asked to remedy the situation.

Mr. LANHAM. Who first reported that, do you know?

Mr. GEORGE. It was reported to me by Colonel Dorland, and he made inquiry about this, and that was how I first happened to get into it. And as I recall, it was in April 1951 that that inquiry came to me. Now, this does not apply, to my knowledge, to the other housing contracts. This does not apply to any of the other construction going on in Alaska, and I want it clear in the record that we feel we have control of this situation and that in general what the Government has bought it gets.

Mr. HOLIFIELD. You can assure the subcommittee that this has been corrected by the contractor?

Mr. GEORGE. The processes are in force to either correct it or get an adjustment, Mr. Chairman.

Mr. LANHAM. Did you change the specifications on the other contracts? Is that why these things do not apply to the others?

Mr. GEORGE. The specifications I think are all right. I think there have been some changes, but the specifications of the job and the plans of the job I do not think are too much in question. This is a shop drawing that is in question, submitted by a contractor—in this case we think a contractor that maybe was not too astute in his business—and because of a situation created in our office, which is in any event understaffed, it got by. Those are the facts, and I again want to tell you that I do not think an honest check of the jobs in Alaska will disclose to any extent at all what this seems to disclose.

Mr. HOLIFIELD. The subcommittee is glad to have that assurance.

Mr. GEORGE. We feel that very strongly, and I wanted to make that statement.

Mr. HOLIFIELD. We want you to know that we are in no way antagonistic toward the Corps of Engineers. We had these complaints submitted to our subcommittee, and we feel it is our duty to go through them and get a report.

Mr. CLOGSTON. Let me ask you, it is a fact that the original drawings showed the laundry trays vented separately? I think there was one other change.

Mr. GEORGE. There was that change. In this drawing the laundry tub received a vent in lieu of the bathtub, or vice versa—I don't remember just which it was, but there was a switch, there was a set-off.

Mr. CLOGSTON. And did the original contract drawings show the house sewer above the floor?

Mr. GEORGE. Also correct; also correct. Now, I am glad you brought it up, very glad. I am sorry I didn't mention it, but I want to explain that part. The drawings show the soil pipe hung underneath the first floor in the basement and run laterally to the wall, where it then goes down into the ground and out to the line. In this submittal the contractor elected to bring his soil pipe straight on down and run it down into the ground. In my humble personal opinion, this is better than the drawings, and if it were my house, this is the way it would be done. If I had been reviewing these, I would certainly approve these on that basis.

Mr. CLOGSTON. I would agree that is the usual way to run your sewers—underground where they are out of the way, not interfering with anything in the basement. But is it a fact, in this case, that by so doing the contractor was able to omit the 2-inch and 2½-inch drains from the laundry tubs that were shown under the ground on contract drawings?

Mr. GEORGE. I believe there were some credits and maybe extensions by the lay-out. I am told that the contractor on the job showed a peculiar pattern. He ran lines which were expensive to run. They were long, needlessly long. It looked to us in retrospect as if he didn't have very good, intelligent people on the job, or he erred himself in the application of material, and yet in certain cases there was the other feature involved. Now, as far as the pluses and minuses, I would rather have the construction group answer that. I did want to make the statement I made, because I know it to be a fact, and I believe it should be understood by the subcommittee.

Mr. HOLIFIELD. Going to item No. 5, "Substitution of 'test tees' for clean-out 'wyes'." The committee inspected that yesterday. We no-

ticed that the wyes are still omitted and the test tees are installed. Now, the fact is established that these are not important in the specifications. The subcommittee would like to inquire if, No. 1, the test tees are considered good plumbing practice, and, No. 2, if by the omission of the wyes it inured to the financial benefit of the contractor?

Colonel FOOTE. I would like to ask Captain Coleman to respond to that question.

Captain COLEMAN. In the matter of the test tees my purely personal opinion is that they may be not quite as good as a wye. There may be other engineers that say it is good, and other engineers that say it is not good at all. I say they are a good installation, because you can clean up as well as down. In fact, I believe the Corps of Engineers feels that way, because our new design departments have changed from wyes to test tees.

Mr. HOLIFIELD. You are incorporating that change in your new specifications?

Captain COLEMAN. No; the Chief of Engineers Office has done that. And we take credit for the use of the test tees over the wyes.

Mr. HOLIFIELD. There was a financial credit given the Government on that?

Captain COLEMAN. Yes, sir.

Mr. HOLIFIELD. I think there is no need to dwell further on that point. It is a matter of opinion as to which is best. I know that Stateside, at least in California, the wyes are used rather than the test tees.

Captain COLEMAN. I am sure you will find that the test tees are not even allowed in California, but they are allowed in other places.

Mr. LANHAM. Why do engineers now prefer them?

Captain COLEMAN. Sir, I have no reason to tell you, except you can clean both ways and they do not project as far out into the room.

Mr. HOLIFIELD. And it is a cheaper type of installation, I believe?

Captain COLEMAN. Yes; it is a cheaper type of installation.

Mr. HOLIFIELD. Item No. 6, "Substitution of hot and cold water chrome supply tubing of a smaller size than called for in the contract specifications (DA–48)." Does that condition still exist?

Captain COLEMAN. Yes, sir; it does. We thought the quarter-inch IB tubing was adequate for the job. As long as the damage that would be incurred to the tubing in taking it out would render the tubing of no further use, we did not ask the contractor to replace it. It was a very critical item of copper.

Mr. HOLIFIELD. When was that discovered?

Captain COLEMAN. We did not discover it until they were all in on contract 48.

Mr. HOLIFIELD. Would that involve tearing out a wall?

Captain COLEMAN. No, sir; it would have been a very easy change.

Mr. HOLIFIELD. Was there a substantial difference in cost in those different sizes, or not?

Captain COLEMAN. No, sir; there is about 3 cents a foot difference in cost of the different sizes. There was only 3 feet involved for each apartment, and we thought 9 cents an apartment was too small to argue about.

Mr. HOLIFIELD. No. 7 is "Omission of cut-off valves on the individual hot and cold water supply lines to each laundry tray, the installation being made on the branch lines serving two units in lieu thereof (DA–48)."

Captain COLEMAN. That has been rectified.

Mr. HOLIFIELD. That was the incident where they crossed the pipes over, so the right-hand side which would regularly bring the hot water would bring the cold water.

Mr. THOMA. May I interpose a statement? That particular point was, the cut-off valves at first were only installed in the main branch coming down to two units, so there was one dwelling unit that had no individual cut-off valves on the supply line to the laundry trays. They did correct that by putting cut-off valves in every other unit. Now, this other thing, where the hot and cold water were on opposite sides from what they should have been, is a different item.

Mr. HOLIFIELD. Those valves which were left off have been installed?

Captain COLEMAN. Yes, sir; they have been installed.

Mr. HOLIFIELD. Item No. 8, "Omission of cold water distributing pipe from hot water tank (DA–48 and 61)."

Captain COLEMAN. Sir, the contractor left this out because he felt that due to the heavily mineralized water we have in this area, that the holes of the distributing pipe would become clogged. However, he did not tell us about it.

Mr. HOLIFIELD. Is it deemed to be a matter of enough importance to require its correction?

Captain COLEMAN. No, sir; because the heating coil that comes in to heat the water in this hot water tank is located directly above the cold water supply and the cold water entering the tank will be diffused enough so that in use of the tank, with the over-size coils of the tank, we experience no difficulty on the job at all. We did take a credit for the deletion of this distributor.

Mr. HOLIFIELD. No. 9, "Substitution of covering which appears to be of paper composition for the wool felt called for in Federal specifications HH–M–371a on the hot and cold water piping (DA–48, 61, 135, and 193)."

Captain COLEMAN. I would like to have Mr. King answer that.

Mr. KING. The covering in question was replaced by the contractor during the correction of the deficiencies. This is incorporated in my subsequent report to the residency.

Mr. HOLIFIELD. Does that take care of that particular covering?

Mr. KING. That particular item; yes, sir.

Mr. HUSTON. Mr. King notes in his report, No. 12. "Pipe covering corrected and painted in accordance with specifications in all buildings."

Mr. HOLIFIELD. No. 10, "General deficiencies other than the above-listed items disclosed as a result of the investigation conducted by Lieutenant Colonel Dorland in April 1951." I believe this investigation pertains to Contract 48, only. Our report is as follows, on that point: During the first 9 months that construction was in progress on DA–48, deficiencies reported by inspectors seemed normal for a project of this type and size. As a rule, inspectors' daily reports were of little value in determining the status of construction during this period. In April 1951 a new inspector, Donald F. Gordon, reported some serious deficiencies in the plumbing and heating installation, many of which dated back to the early stages of construction. Most of the deficiencies resulted from substitution of inferior materials, poor workmanship, and other deviations from the contract plans and specifications. Although this matter was investigated by the district

office, only limited action was taken to correct these deficiencies, and no action at all was taken to recover the amount due the Government, representing the value of the work deleted which the contractor was not required to correct. Physical inspections of the buildings made during this investigation confirmed the fact that most of the more serious deficiencies still existed, although some corrections had been made by the contractor. This pertains apparently to the time period before the corrections were made, and refers in general to the items that were covered in our report; is that not true?

Mr. THOMA. That is right. May I make a statement at this point?

Mr. HOLIFIELD. Proceed.

Mr. THOMA. The deficiencies that are referred to in my memorandum to Colonel Seeman are those which are listed in the mechanical inspection report made April 19–20, 1951, by Captain Coleman, D. F. Gordon, and John J. Loughlin. It consists of a number of deficiencies of various types. Some of them are fairly important, some of them are just what you might class as minor items. But there is one statement in this report which is made which will indicate at least an estimate of the value of the work deleted, it is made by this three-man inspection team. Then there is this statement here.

Mr. HOLIFIELD. This refers to the summation of the report signed by Donald F. Gordon, John J. Loughlin, and John H. Coleman: "Substitution of inferior materials, omission of specified materials, use of prohibited materials and deliberate deviations from contract plans and specifications has decreased the contractor's cost approximately $125,000. Of this sum $50,000 would be savings in material and $75,000 decreased labor costs." Captain Coleman, was that your considered judgment at that time?

Captain COLEMAN. Yes, sir.

Mr. HOLIFIELD. Has your judgment on that point changed?

Captain COLEMAN. No, sir, except that radiator valves have been put on, worth $25,000, and swing joints have been put on. Otherwise the figures are true of the work today.

Mr. HOLIFIELD. It would be true, subject to the claim of the contractor for increased payment for correcting this work?

Captain COLEMAN. I imagine the contractor has spent well over a quarter of a million dollars correcting the work we have listed there.

Mr. HOLIFIELD. What is his claim?

Captain COLEMAN. I do not know.

Mr. GILPIN. He has made claims for the radiator valves without a monetary value on it. He has made a claim for actual damage we have assessed which is a matter, I think, of around $74,000.

Mr. HOLIFIELD. That is for not finishing his contract on time?

Mr. GILPIN. Yes, sir. He has indicated, I am not sure he has processed the claim yet, that he will claim for installation of swing joints, but there has been no monetary value set on them yet.

Mr. HOLIFIELD. This would be beyond your control, this would be in the hands of the Claims Department?

Mr. GILPIN. It would come through our office for consideration, and we have to give the contractor a right to appeal on our decisions, the right for him to come back and argue it out a last time. Then if it is not settled locally, it is sent to Washington.

Mr. HOLIFIELD. You have already sent in your report on this?

Mr. GILPIN. Yes, sir.

Mr. HOLIFIELD. And in your report, have you allowed these claims of the contractor, or have you recommended against them?

Mr. GILPIN. They have been recommended against.

Mr. HOLIFIELD. You have recommended against the contractor's claims for injury on these items?

Mr. GILPIN. Yes, sir, in our opinion they are not allowable.

Mr. KING. In this connection, sir, we have the records, detailed records which indicate expenditures by the contractor of over $200,000 in the correction of these deficiencies as listed in the report referred to.

Mr. HOLIFIELD. Are there any further questions on this item?

Mr. ROBACK. I wonder if the subcommittee could be enlightened by any witness here on the $60,000 figure mentioned by General Hardin in his communication to Mr. Holifield? Presumably that was based on information received from the district office.

Mr. GILPIN. I would like to present the first part in answer to your question, then the detailed part I would like to refer to Major Hughes and Captain Coleman. I would like for Major Hughes to hear that letter before we make a statement on that.

Mr. ROBACK. I will read the pertinent paragraph. This is a letter dated July 28, 1952, from Brig. Gen. John R. Hardin, Assistant Chief of Engineers for Military Construction, Office of Chief of Engineers, to Congressman Holifield. The second paragraph reads:

Contract DA-95—

I will shorten that—

Contract 48 with Patti-MacDonald Construction Co. has been physically covered. All deficiencies either have been corrected or offsetting credits taken by the Government. The project has been accepted and the last modification is now in preparation. The offsetting credits in this amount to a total of $60,000, and the claim has been submitted by the contractor as a result of additional costs to him because of changes insisted on by the Government. A small sum of $100 will be retained when final payment is made, until final settlement of the contract is cleared.

The subsequent paragraph mentioned that there were no offsetting claim figures.

Mr. GILPIN. In the payment estimate to the contractor, and all the adjustments not having been settled for credits, we felt the Government was entitled to and we did retain a certain figure, which we took a good guess at, we made it plenty substantial, and we kept back $60,000 on the payment of the contract, plus the $100 to keep the contract open. That is not a figure firmed up in the estimates, the $60,000, but the estimates indicated that $60,000 would be ample to hold back until we got the adjustment we felt should be made by the contractor. Major Hughes and Captain Coleman at that time were going over detailed estimates of the credits we felt we could take from the contractor for deficiencies, omission, or substitutions in his contract.

Mr. ROBACK. You mean that figure was taken out of the air?

Mr. GILPIN. We took a figure out of the air that we thought was plenty ample to cover the Government for any credits we would take from this contract.

Mr. HOLIFIELD. Do you want to add to that, Major Hughes?

Major HUGHES. I think that explains the $60,000.

Mr. HOLIFIELD. Colonel Foote, in the construction at Ladd and Eielson, was that construction up there of family housing units subsequent to this construction, or did they run along parallel?

Colonel FOOTE. I believe, sir, the first contract at Eielson was essentially parallel to the first two of the four contracts under discussion here.

Mr. HOLIFIELD. What is the condition of those construction projects? Would they compare with the DA–48 contract in the final condition of the buildings? Are there any questioned items between the Army engineers and the contractors on those contracts?

Colonel FOOTE. Not to my knowledge, sir. I believe the first and second contracts at Eielson have been completed without any controversy. Is that correct, Mr. Gilpin?

Mr. GILPIN. The first contract is completed, the quarters are occupied and being lived in, without any major controversy between the Government and the contractor.

Mr. HOLIFIELD. Is that lack of controversy due to the fact that the specifications were followed more closely, or that you failed to call to their attention the deficiencies such as existed in DA–48?

Mr. GILPIN. Well, I said without any major controversy, because every contract has some controversy, more or less, in the interpretation of specifications. There was no difficulty on those contracts, such as there was on DA–48.

Mr. HOLIFIELD. If the subcommittee visits those projects, will it find the construction in order apparently like it is in DA–135 and 193?

Mr. GILPIN. I believe you will, sir.

Mr. HOLIFIELD. Or will they find them in the condition that DA–48 was in before you had the contractors improve it and correct it?

Mr. GILPIN. Well, we invite you to see them.

Captain COLEMAN. I have inspected all those projects up there, and I found them in very good order and following the specifications.

Mr. HOLIFIELD. How about the tubs?

Captain COLEMAN. That was a different contract, and I think they were all cast iron ones up there. As I recall, we have all cast-iron tubs in the Fairbanks area.

Mr. DEMARAS. That is Ladd and Eielson?

Captain COLEMAN. Yes, sir.

Mr. HOLIFIELD. Let's take 10 minutes' recess.

(The hearing was recessed at 3 p. m., September 9, 1952, and reconvened at 3:15 p. m. the same day, with all persons who had been present before recess again present in the courtroom.)

Mr. HOLIFIELD. Colonel Foote, we have in our files a letter from Colonel Seeman to Mr. Carl Thoma, dated November 15, 1951. Among other things, he states that "Figures have been compiled in order to negotiate with the contractor on the credit due the Government; our estimate for this credit amounts to $101,055," and he refers to exhibit C, which we have here, which is an estimate prepared by Mr. Boyer, transmitted through Mr. Knudson to Mr. Gilpin, itemizing the different amounts of credit items due the Government, totaling $101,055. Now, can you, in view of that particular cost estimate, can you reconcile the $60,000 amount which the Government is claiming as a credit from the contractor?

Colonel FOOTE. Sir, first I would like to explain that the $60,000 amount referred to is a withholding, rather than a claim, supported

documentary claim against the contractor. That is a fiscal action, as distinguished from a negotiated action with the contractor.

Mr. HOLIFIELD. My understanding of Mr. Gilpin's testimony is that he considered the $60,000 adequate to cover the credits due. Now, if he does consider $60,000 adequate, I would like to have you reconcile the difference between the $101,055 and the $60,000. I notice in General Hardin's letter that he says that the offsets cover the $60,000 and claim has been submitted by the contractor as the result of additional costs for changes insisted on by the Government, so apparently you have arrived at a figure of $60,000 as an authentic credit, not only a withholding payment, but according to General Hardin it is a final determination that $60,000 is not only the withholding but the amount of credit due.

Colonel FOOTE. I am reluctant of course to challenge the accuracy of General Hardin's statement and figures, sir, but I believe that this figure was taken from the Washington copy of a routine payment estimate which showed, without supporting paper, a withholding of $60,000 from the contractor, it is merely a fiscal action. We do have a reconciliation between the estimates which supported Colonel Seeman's letter of November 15, 1951, and the final adjustments under the contract.

Mr. HOLIFIELD. Would it be possible for you to give us the documents which reflect your reconciliation, so that we will know that this $60,000 is an itemized amount and not just a lump sum pulled out of the air, as was alluded to a few minutes ago?

Colonel FOOTE. Sir, we are unable to support the $60,000. We do have documents representing a lesser amount, which I believe Mr. Gilpin is prepared to submit.

Mr. HOLIFIELD. I have this photostated copy, which shows a total retained and deducted of $60,000. You are familiar with this, possibly?

Mr. THOMA. May I ask a question at this point? Colonel Foote, is that the document you referred to, that the Corps of Engineers, headquarters, Washington, D. C., determined the amount as shown in General Hardin's letter?

Colonel FOOTE. This is the document I referred to. I am unable to establish any other source of his statement. Now, I may not be fully informed on that. Mr. Gilpin, will you enlighten the committee if you can?

Mr. GILPIN. I cannot enlighten them on General Hardin's basis, other than this was the only $60,000 questioned as a retention in this payment to the contractor.

Mr. ROBACK. The subcommittee is entitled to conclude, then, that General Hardin was not fully informed when he stated the $60,000 was an offsetting?

Colonel FOOTE. That may be true. Just what his understanding of what the $60,000 was, I do not know.

Mr. ROBACK. I would like to ask Captain Coleman, I think the subcommittee was left with the impression that the $60,000 represented a knockdown, which was the difference between an original estimate by you of $125,000 and a subsequent estimate by the district office of $101,000, and that in the knockdown some adjustments were made in deficiencies. Did you mean to convey that?

Captain COLEMAN. I do not know what the $60,000 allowance is for.

Mr. GILPIN. That is a payment estimate.

Mr. HUSTON. That is one you called me about, Mr. Gilpin, you asked me why I withheld $60,000, and I told you that was my estimate, which I thought was more than adequate at that time to cover any credits we had due from the contractor. What is the date of it?

Mr. GILPIN. April 15.

Mr. HUSTON. That was my estimate of a quantity that would amply cover any credits due from the contractor.

Mr. HOLIFIELD. That was undoubtedly based on certain items?

Mr. HUSTON. No; it was just an arbitrary estimate. We had gotten a broad figure of between $40,000 and $50,000, so we made it $60,000; we wanted to be sure we withheld enough.

Mr. HOLIFIELD. Isn't it true that in the final adjustment you have to itemize your claim?

Mr. HUSTON. Oh, yes; of course, on final payment.

Mr. HOLIFIELD. Are you in possession now of the itemized claim?

Mr. HUSTON. I believe we are.

Mr. HOLIFIELD. That would be in Mr. McCaskey's department?

Major HUGHES. No, sir. I think it might be well to explain how we take credits from the contractor. They are taken by reducing the contract amount, and that is done by a modification to the contract. When the amount has been established that is determined to be an equitable amount, then a modification is prepared reducing the contract amount by that agreed figure. That is then deducted from his, or rather his total contract amount is therefore reduced, therefore we reduce what is owed the contractor.

Mr. HOLIFIELD. And the Claim Board makes that final determination?

Major HUGHES. No, sir. If there is a claim, the Claim Board does, but these items we are talking about here, we are only talking about three claim items, swing joints, convector valves, and relief from excess damage, which he has put in a claim for.

Mr. LANHAM. That is entirely separate from any other deficiencies?

Major HUGHES. It is entirely separate from any of these other deficiencies.

Mr. LANHAM. Have you yet determined what the claim should be?

Major HUGHES. Yes, sir.

Mr. LANHAM. Do you have the figures?

Major HUGHES. Yes, sir.

Mr. LANHAM. How nearly do they approach that of Colonel Seeman's?

Major HUGHES. By one-tenth.

Mr. LANHAM. As much?

Major HUGHES. Yes.

Mr. LANHAM. What is your figure now?

Mr. GILPIN. May I ask for clarification before we get into that? We are talking about claims.

Mr. LANHAM. No; I am not talking about claims.

Mr. GILPIN. That was the word used, we were talking about claims processed. This is for deficiencies, substitutions on the job.

Mr. LANHAM. Yes; that is what I want. If I used the word "claim," I did not mean that.

Lieutenant Colonel BRONN. While Major Hughes is getting his papers, I may be able to explain this letter. You will note in here the letter specifically states, the language is, "Modification on the contract

is now in preparation," indicating that they had no final figure on the modification, and on my inquiring as to how we got the $60,000 in this letter, I was informed they made a telephone call to the North Pacific Division, and they made an estimate of $60,000, and that was the best figure that they had.

Mr. HOLIFIELD. If I understand Major Hughes correctly, he now tells us that the amount is closer to $10,000, or one-tenth of the $101,000 that was originally stated.

Mr. ROBACK. While we are waiting for Major Hughes, I believe the $60,000 figure originated with some kind of estimate by Mr. Huston. Mr. Huston earlier testified he has nothing to do with making any cost estimates or with cost information.

Mr. HUSTON. I process the payment estimates. The payment estimates come from the contractor into my office. I have to thoroughly review them for accuracy and find the work as having been performed in accordance with the plans and specifications before payment. So I had the contractor show a deduction of $60,000 on that particular payment estimate before we would process it. That is the only fiscal action I take, to certify the payment estimate as being correct.

Mr. THOMA. May I ask one question of Mr. Gilpin?

Mr. HOLIFIELD. Yes.

Mr. THOMA. Mr. Gilpin, in Colonel Seeman's letter to me, he indicates one item here for the deletions on the plumbing system, where he states the plumbing was not installed according to the contract, and indicates that he estimated a credit of $65,739 is due the Government. That estimate apparently was based on the inspection made on September 11, which an engineer in the fair costs estimating section, by the name of Moy Wip, made. Mr. Wip, in preparing for that inspection, made take-offs from the contractor's shop drawings and from the contract drawings of the plumbing system, and based on his physical inspection of it he made a material and labor take-off, which was a preliminary figure, at the time I was here in September 1951, which indicated a figure slightly in excess of that, about $73,000. In referring to this modification, the No. 10 item, I notice that that particular item was included in the change order which is supposed to close out this particular contract. Can you tell me whether there is to be any credit taken for the deletions in the plumbing system?

Mr. GILPIN. I will refer you to Major Hughes on the estimate we prepare. I would like to present one fact: The change orders, in all fairness to the contractor and to the Government, if a contractor has a proposal, he makes an estimate of the value of a change, either an increase or decrease, and we make one. If they are inequitable, there is a detailed review made out separately, and if that can't be determined, there is one made together, to see where any trouble may lie. These figures were made by Mr. Boyer back in November, they were not checked in any detail, they were incorporated in a letter to Mr. Thoma. The contractor has since been in numerous negotiations with our department, and our estimating department has been likewise, and we finally have arrived at a figure we feel equitable to the contractor and the Government, and those are the figures we have here in comparison with this item of $103,000. If you care to start with this $60,000, we can do that.

Mr. ROBACK. Mr. Chairman, I would like to call attention to the fact that as late as February 1952, Colonel Seeman, as the contracting

officer, made findings of fact with regard to the contractor's appeal on contract 48, from one aspect of that contract, in which he quotes from the report of the inspection team. That particular quote approves by reference the fact that the substitution of inferior materials, or omission of specified materials, or use of prohibited materials and deviations from the plans and specifications decreased the contractor's costs by approximately $125,000. I think the subcommittee is entitled to assume that the inclusion of that quote in the findings of fact indicates that it was with approval.

Mr. GILPIN. Which letter is that?

Mr. ROBACK. The contracting officer's findings of fact in regard to the appeal of Patti-MacDonald Construction Co., from the contracting officer's decision on contract No. DA–95–507–eng–48.

Major HUGHES. I think he was referring there to the first estimate made by Captain Coleman in April 1951.

Mr. ROBACK. And I think the subcommittee is entitled to conclude that since the quote was made on February 1, 1952, it was made with approval.

Major HUGHES. Approval of whom?

Mr. ROBACK. The quote wouldn't be made unless it was relevant to the contractor's claim.

Mr. HOLIFIELD. Is that still in effect?

Major HUGHES. At that time we had not established the final negotiated figure.

Mr. HOLIFIELD. You have since established that figure?

Major HUGHES. We have established it.

Mr. HOLIFIELD. What is that figure?

Major HUGHES. It is $10,252.80.

Mr. HOLIFIELD. Then I think it might be in order to reconcile these items at this time, if you have the reconciliation documents.

Major HUGHES. Where do you want to start, sir? Included in that are some items which we have already discussed.

Mr. HOLIFIELD. You can call those to our attention when you come to them.

Major HUGHES. Bathtubs, I think we have discussed.

Mr. HOLIFIELD. Do you have your list of items there? That is category A–1?

Major HUGHES. Yes, sir.

Mr. HOLIFIELD. Do you have this sheet known as exhibit C?

Major HUGHES. I have a copy of that; yes, sir.

Mr. HOLIFIELD. Starting with item: "Category A–1, $8,109," will you explain what that item was and what your reconciliation is?

Major HUGHES. The item is substitution of bathtubs. Originally the Government estimate was, as was included in the report to Mr. Thoma, $8,109. The agreed equitable credit is $1,766.64.

Mr. ROBACK. How does that figure per bathtub?

Major HUGHES. It is $4.33.

Mr. HOLIFIELD. Item: "Category D–1, bathtub vents, $5,712."

Major HUGHES. That item was settled for $2,601.

Mr. LANHAM. How did you arrive at that figure?

Major HUGHES. We arrived at that by Captain Coleman going through it and refiguring it, based on the labor and material required for the installation installed as against the installation shown on the contract drawings.

Mr. HOLIFIELD. All right, proceed. Item: "Category D–3."

Major HUGHES. That is clean-outs omitted at ends of horizontal waste lines. We figured that, sir, when we get this $65,000 item, it is all included in one computation. This is carried out into the $65,000 item, we computed it there. It is part of the soil-pipe system, so we figured it right into the soil-pipe system, which is in category M–1.27A4 (10), the last one, I think, the large $65,000 item, the third from the bottom.

Mr. HOLIFIELD. All right, now, the next.

Major HUGHES. That is the "Cold-water distributing pipe in hot-water storage tanks." Captain Coleman has explained the details of that.

Mr. HOLIFIELD. That is item: "Category D–8, $204?"

Major HUGHES. Yes, sir. The credit accepted was $127.50.

Mr. HOLIFIELD. Instead of——

Major HUGHES. Instead of $204.

Mr. HOLIFIELD. What was that amount, again?

Major HUGHES. It was $127.50. That was considered to be an equitable adjustment.

Item D–9: "Relief valves, hot water storage tanks," that was set up to be $102. It was settled for $120.

Mr. HOLIFIELD. In other words, you increased the amount from $102 to $120?

Major HUGHES. Yes, sir. You want the explanation there, sir?

Mr. HOLIFIELD. Yes, sir.

Major HUGHES. The contract specifications required a 1-inch pilot-operated pressure and temperature release valve. The contractor installed a three-fourth inch pressure release valve which was not pilot-operated. We determined the difference in cost of the two was $2 per valve.

Mr. HOLIFIELD. Proceed to item 3.

Major HUGHES. Item 3: "Medicine cabinets." The contract specifications asked for a medicine cabinet with plate glass mirror. However, the Government had in stock approximately 45 percent of the medicine cabinets required for the contract, and they were sold to the contractor to be incorporated in the work, and the contractor bought the remainder. The cabinets he furnished were with a larger mirror than the cabinet specified, and in our opinion were better than the one specified, so we required no credit from the contractor.

Mr. HOLIFIELD. Proceed.

Major HUGHES. The next item Captain Coleman has explained. This is the compression stops, or rather the tubing from the compression stops to the fittings, not the compression stops themselves. The contract drawings referred to Federal specifications WW–P–541A. The contractor installed the compression stop as specified, except he used quarter-inch tubing from stock and tube fittings, rather than straight through tubing the same size as the stop. The specification doesn't say he can use it, but in the plumbing trade it is generally accepted that when copper tubing is used you can reduce one stop size. However, we didn't receive any credit there, because we figured that there was such a small difference in cost, as Captain Coleman told you previously, that it was inconsequential.

Mr. DEMARAS. May I ask you a question? You just stated, as I understood it, that in plumbing parlance, when copper tubing is

used, you may reduce one pipe size. True, but you didn't put in the other part of the question, from a higher pipe size.

Major HUGHES. From the higher pipe size.

Mr. DEMARAS. I just wanted that clear in the record.

Mr. HOLIFIELD. Item 14.

Major HUGHES. Volume control on shower head. Actually, volume control is not necessary on shower heads. It is required when you have a mixing valve. In this case you had control by individual faucets on each the hot and cold water, therefore no volume control was necessary and we didn't require the contractor to put it on.

Mr. HOLIFIELD. Although the specifications called for it?

Major HUGHES. Although the specifications called for it. We took a credit for it, and the credit is supported by voucher from the Crane Co., at $1.07 difference in cost of the shower head with the volume control and without the volume control, a total of $436.56.

Mr. HOLIFIELD. All right.

Major HUGHES. Soap dishes on laundry trays. NPA regulations prohibited the manufacture of such items. Therefore, we accepted the laundry trays without soap dishes, and we accepted Crane Co.'s credit of 30 cents each, or a total of $122.40.

Mr. ROBACK. NPA regulations prohibited installation, is that what you said?

Major HUGHES. Regulations of the manufacturer. The next item is cast iron clamping rings. This is another item which is prohibited by NPA regulations. Brass and bronze products cannot be used in drainage structures.

Mr. THOMA. May I make a comment? I think the record should be clear on the use of those items not prohibited by NPA, by the manufacturer. And bronze clamping rings, from what I have been able to see, were available at that time, they were used on other contracts.

Mr. LANHAM. Were they not available?

Major HUGHES. Our information from the contractor was that they were not available.

Mr. LANHAM. You took his word?

Major HUGHES. On that item we did. The installation that was made was entirely satisfactory, using the cast-iron ring.

Mr. LANHAM. What credit was made?

Major HUGHES. We took a credit of $528.36.

Mr. HOLIFIELD. All right, the next item.

Major HUGHES. Banding of logging on hot and cold water, soil and drain lines, was an item corrected by the contractor.

The next item is, I believe, the $65,000 item, plumbing not installed in accordance with contract drawings. The original Government estimate showed a credit due of $65,739. Subsequent examination of that estimate by Captain Coleman and preparation of a new estimate, which we have here, revealed that the original estimate had errors and omissions in favor of the contractor. They did not include any excavation for—I think I had better go back and explain a little here, or ask Captain Coleman, rather, to explain the differences in the plumbing for which we have figured this.

Captain COLEMAN. The original drawings on the plumbing required the roof drain lines and half of the soil pipe to be run along one of the exterior walls in the basement. We have talked about the approval

of putting it above, that it was not desirable to run it under the floor. In doing so, we eliminated considerable covering and some pipe from the hangars, but we did incur some extra work, such as excavating. Excavation in this territory is extremely expensive, because labor is high. Excavation by hand is extremely expensive, because labor is high and efficiency may not be as good as in the States.

Mr. LANHAM. Now, if the contractor preferred to install it that way, you didn't require him to do this extra excavation, did you?

Captain COLEMAN. I think we did, sir, by change order.

Mr. LANHAM. But that was after he had done the excavating on his own motion, and it was just a question of settling it, wasn't it? Now you shake your head, Major, let's see what he says about it.

Captain COLEMAN. I think there was a change order.

Mr. LANHAM. Let's don't think about it. Can you give us the date?

Captain COLEMAN. I will have to ask Mr. Huston. What was the date of the change order?

Mr. HUSTON. There is no time on the request of the contractor. He gave us his cost breakdown, an analysis of which moneywise showed his cost of material, labor, trenching, his net result was an increase in cost of 20 cents per building. That was sent to the district office for approval and came back approved, with no change in cost or time.

Mr. LANHAM. Did they approve the 20 cents per building additional?

Mr. HUSTON. No, it came out in the approval.

Mr. LANHAM. But what I want to know is, why did you give the contractor credit for the excavation?

Mr. HUSTON. Sir, that was part of the change.

Mr. LANHAM. But the change was submitted without any additional allowance.

Major HUGHES. That is what we attempted to show, sir, there was no saving to the contractor by putting it underground.

Mr. LANHAM. But you are allowing him a credit for excavation.

Captain COLEMAN. No, sir.

Lieutenant Colonel BRONN. May I go off the record a moment?

Mr. HOLIFIELD. Off the record.

(Record closed: Record opened.)

Mr. HOLIFIELD. Mr. George, if you are acquainted with this item, will you start and give the subcommittee the benefit of your knowledge.

Mr. GEORGE. One question: Is this in 48, and is this in the soil pipe, where he in his shop drawings submittal showed it underneath the floor?

Mr. DEMARAS. That is right.

Mr. HUSTON. We don't know the date of that shop drawing change.

Mr. DEMARAS. Before we say we are in agreement on that, I would like to have an analysis showing what the $65,000 included.

Mr. GEORGE. We will get to that. I want to define now how it came about on this change, I want to make it clear if I possibly can. The contractor submitted these shop drawings to us, and these soil pipe, which on the plans are underneath the basement floor, between the first floor and the basement, and hung from the joists of the first floor, he showed them coming straight on down below the first floor and running in trenches to the outlet. I again make the statement, I think it was a betterment to the job. I have nothing to do with the relative

cost, plus or minus, which is being discussed, but that is how the change got into the job.

Mr. HOLIFIELD. All right. So that change was requested by the contractor, as I understand it?

Mr. GEORGE. Yes, sir.

Mr. HOLIFIELD. A change order was issued, and he was given approval for making that change?

Mr. GEORGE. His shop drawings were approved in that regard.

Mr. LANHAM. Showing no increase or decrease to the Government, is that right?

Major HUGHES. That is correct, sir, at no increase or decrease in price.

Mr. LANHAM. Now then, after that your estimators, or whoever did this estimating about the credits to the Government, figured there was some credit due there, did they not?

Major HUGHES. That is in the $65,000 which we are discussing, and that is where we showed you where those errors were in that estimate.

Mr. LANHAM. Now, how did they determine that? Do you have the breakdown of the $65,000?

Major HUGHES. Yes, sir. It was determined by taking the entire system as shown on the contract drawings, figuring what that would cost, and taking the system as called for by the contractor.

Mr. HOLIFIELD. May I ask you a question? When the contractor came to you for this change, did he indicate to you there would be additional cost?

Mr. GEORGE. No, sir; a shop drawing would not indicate that, sir, it would only indicate his method of doing the work, and that is an engineering check.

Mr. HOLIFIELD. Who would be responsible for the change in cost on any change order? Is it customary to allow change orders without computing the cost one way or another?

Mr. HUSTON. No.

Mr. HOLIFIELD. Was the cost computed or claimed by the contractor?

Mr. HUSTON. The contractor asked for approval of the change at no change in price. He sent in a breakdown with a computation of zero change. That went over to the district office, where it was no doubt evaluated and approved.

Mr. GILPIN. I would like to interject a thought.

Mr. HOLIFIELD. Just a moment. Later on, the contractor comes back and says, "I forgot to include the cost of my digging." Is that right?

Mr. HUSTON. No, sir; that is not the case. As I understand—Jack, correct me if I am wrong—later on the Estimating Branch thought that, instead of approving this change at zero cost, zero change, we should have some $65,000 credit. That was one estimate. Then, on an estimate following that one, we come up with a different figure more agreeable to the contractor's original proposal.

Mr. LANHAM. In other words, they had not taken into consideration the additional excavation he had to do?

Mr. HUSTON. Yes, sir.

Mr. KING. In other words, we forgot the excavation in our estimate, which reflected a large credit.

Mr. HUSTON. I think if you would let me go on through that——

Mr. LANHAM. I see now.

Mr. HUSTON. The $65,000 estimate was prepared at the time this report went in to Mr. Thoma. Now, when we came down to settle this item with the contractor, Captain Coleman was asked to redo that estimate, because it didn't look logical. So, in Captain Coleman's new estimate, in comparing the two, these discrepancies in the old estimate showed up.

Mr. HOLIFIELD. This plumbing you are speaking of is pipes that now are under the floor of the basement; is that right?

Mr. HUSTON. Yes.

Mr. HOLIFIELD. And, if the contractor had followed the original specifications, the pipes would have come outside, from under the floor of the first floor?

Mr. HUSTON. Not exactly. They would have hung on the wall under the first floor. In other words, through the basement, but hung on the wall instead of being under the floor.

Mr. HOLIFIELD. Now, did this cost of excavation refer to the excavation under the floor of the basement, or to——

Mr. HUSTON. Under the floor of the basement, sir.

Mr. HOLIFIELD. What pipes were those pipes?

Mr. HUSTON. The roof-drain lines and the soil-pipe lines.

Mr. HOLIFIELD. Your soil pipe leads out to the sewer lines?

Mr. HUSTON. In the original plans it came along the wall. I would rather let Captain Coleman tell you about that.

Mr. HOLIFIELD. In other words, there was no definite excavation from the house line down and out to the street?

Captain COLEMAN. There was 180 feet per building more excavation, using the proposed plan of the contractor rather than the original plan. Both of them had some excavation under the floor, but there was 180 feet more per building under the contractor's plan.

Mr. HOLIFIELD. What depth was that excavation, approximately?

Captain COLEMAN. Approximately, it would average 3 feet in depth.

Mr. LANHAM. Now, did he have to make that excavation for other pipe or other reasons?

Captain COLEMAN. This is 180 feet of extra excavation, sir. He did have a lot of work already down there, but he had 180 feet more.

Mr. CLOGSTON. Did your estimate take into account all the excavation omitted by the contractor when he omitted the 2-inch and 2½-inch pipe? Wouldn't that excavation nearly offset the additional excavation he had to do?

Captain COLEMAN. No, sir, because on the original installation there were no roof-drain lines on the floor.

Mr. CLOGSTON. There were laundry-tub-drain lines.

Captain COLEMAN. Yes, sir. I am not considering that at all.

Mr. THOMA. May I make a statement? The original contract plans show only those lines underneath the basement floor. When they took the waste line through and put it under the basement, they omitted the 2- and 2½-inch pipe and ran the drainage into the waste pipe, and they had to excavate for the 2- and 2½-inch pipe, because the drawings show that the pipe would be approximately 5 to 10 feet away from the wall. They moved the 4-inch line 1½ or 2 feet from the wall. So, the additional excavation would be smaller, in my opinion.

Mr. CLOGSTON. In the original drawings, the laundry tubs were to be drained through 2- and 2½-inch lines that run under the floor nearly the whole length of the building. Wouldn't that excavation be

avoided doing by this change nearly offset the excavation for the line he dropped from the wall?

Captain COLEMAN. That is true, but there would still be the excavation for your roof drain-off. I think on roof drainage he had 125 feet of excavation.

Mr. CLOGSTON. What would that run?

Captain COLEMAN. Nothing. That was all on the wall. And he got 55 feet of extra excavation on soil piping around each place where the stack plumbing, the stacks from the second floor, came down. That came to about 10 feet per apartment, which I think was quite reasonable.

Mr. HOLIFIELD. Now, where a change order such as this is approved or allowed, does the Government automatically obligate itself to the cost of that change if it involves additional cost?

Mr. GILPIN. Many times we have issued a letter to the contractor approving a change, if that change is found to be absolutely essential, and we are unable to negotiate the price before we can issue the change. If, as I say, it is found it is an essential change, we authorize the contractor to go ahead, subject to an equitable adjustment of the contract.

Mr. HOLIFIELD. In this particular instance, due to error on the part of the contractor in his request, there was no negotiation?

Mr. GILPIN. I do not understand the "error," sir.

Mr. HOLIFIELD. In this particular case, due to the fact that the contractor made an error in his request, stating there would only be 20-cents-per-house change, which was disapproved, you went ahead and approved the change without any negotiation as to increased cost?

Mr. LANHAM. No; the agreement was that there would be no increased cost.

Mr. HUSTON. We approved the change at no increased cost to the Government.

He gave us a breakdown, and we agreed to his breakdown.

Mr. HOLIFIELD. But later on, when either you or the contractor found he had made a mistake, you allowed him this additional allowance?

Mr. HUSTON. No; we are not allowing him anything.

Captain COLEMAN. That came out of the $65,000.

Mr. HOLIFIELD. That canceled the $16,000 original claim?

Captain COLEMAN. No, sir. This came out on the subsequent estimate by the Estimating Section, when they were trying to get this $65,000 from the contractor.

Mr. HOLIFIELD. Oh, I see; I think I see. Had you finished your presentation, Major Hughes?

Major HUGHES. No, sir.

Mr. HOLIFIELD. Well, proceed.

Major HUGHES. The first part was the 180 feet of excavation which wasn't included in the contractor's cost for installing the as-built installation, which amounted to a total of $41,310. The Government estimate also extended the cost of caulking lead as $20.90, instead of $209, per building. That was an error of $12,326.70. The Government estimate did not take into consideration the contractor's ability to purchase materials at an average of 25 percent lower than wholesale cost. This amounted to approximately $92-per-building difference between the contract and the as-built, or a total of $6,029.

Mr. LANHAM. I do not get that "as-built."

Major HUGHES. The difference in the cost of the two installations, the materials in the two installations.

Mr. LANHAM. He could have bought them as cheaply one time as another.

Major HUGHES. I mean, when they figured the materials they figured them too high. He could purchase them cheaper than they had them figured in the original estimate.

Mr. LANHAM. What additional materials were necessary?

Major HUGHES. There was not as much material; but, in figuring the cost of material, when you figure an over-all and estimate the cost of material at 25 percent higher than it is, that makes your difference in cost of the two projects—well, we figured it would be $72. I think Captain Coleman might be able to explain that in a little more detail.

Mr. LANHAM. I don't see that, unless he had additional material to buy.

Captain COLEMAN. He didn't have as much material to buy on the as-built job as he did on the original job by approximately $500—$450.

Mr. LANHAM. Well, your estimator didn't charge him with any additional material?

Captain COLEMAN. Yes, sir. Mr. Boyer's estimate here figured $450 more material in the contract drawings over the as-built drawings.

Mr. HOLIFIELD. What item is that on?

Captain COLEMAN. You take 25 percent of that; it would be $92.

Mr. LANHAM. I don't see that.

Captain COLEMAN. Sir, if you buy a plumbing job for—say one would cost $100 and the other $200 for material; there would be $100 difference in the material cost of those two jobs. Now, the contractor gets 25 percent discount.

Mr. LANHAM. I know, but he didn't buy any additional material; he saved some.

Major HUGHES. But they showed him saving more than he really saved; they showed him saving more by 25 percent than he actually saved.

Mr. HOLIFIELD. The Boyer estimate showed him saving more than he actually saved by 25 percent, or $92 per building?

Major HUGHES. Yes, sir.

Mr. HOLIFIELD. That totals how much?

Major HUGHES. It totals $6,029.

Mr. HOLIFIELD. What kind of material is that?

Major HUGHES. That is pipe, fittings.

Captain COLEMAN. Clean-outs.

Mr. HOLIFIELD. All right.

Major HUGHES. Then the original estimate showed the labor required for the as-built installation to be $135 per building less than the subsequent estimate by Captain Coleman, the subsequent estimate based on actual cost for similar construction on other contracts. Captain Coleman, in preparing this estimate, used actual cost figures. The original was figured on Stateside cost, with an Alaskan figure added on unit prices, rather than actual cost of work performed.

Mr. LANHAM. You mean the estimate was based on that?

Major HUGHES. Yes, sir, and that totals $8,590. We negotiated with the contractor on settling this item. We used Captain Cole-

man's estimate, and it is determined by that estimate that there is no credit due the Government for the change in the plumbing system, the changes that they made in the system as referred to in the report.

Mr. LANHAM. That refers only to those pipes we have been talking about?

Major HUGHES. Sir, when this estimate was made, as I previously stated, it was figured first on what was shown on the contract drawings; then it was figured on what the contractor actually installed on the job.

Mr. LANHAM. What I am getting at, it applied only to these drain pipes?

Major HUGHES. It applies to the entire plumbing system, including all pipe all the way up to the roof, including vents. You will find the allowances will total $68,252, but Captain Coleman's estimate includes the vents, which is a separate item in here, for which we got a credit of $2,601. Take the $2,601 from the $68,252 and you will arrive at a figure somewhere in the neighborhood of the $65,739 which was shown as a credit due the Government.

Mr. HOLIFIELD. I would suggest that we pass on to those last two items, and leave this at the present time. The next in line is $9,537.

Major HUGHES. That is bucket traps. These traps were in the high-pressure steam line in the design. As stated before, the utilities for these houses had not been designed when this contract was awarded, and it was thought that high-pressure traps would be required at the high-pressure steam line, and they were included in the contract. The contractor in the installation, however, thought they were unnecessary, since the lines did drain away from the building through steam mains and it was picked up by pumps in manholes. The contractor first offered the Government a credit of $8.42 per trap. We of course did not consider that to be equitable; and finally, after working it out in conference, using cost figures which the contractor submitted and vouchers from his suppliers, we arrived at $47.26 per trap, or a total of $2,315.74, which we considered to be an equitable credit.

Mr. DEMARAS. Does that $2,300 represent material costs?

Major HUGHES. Material and labor.

Mr. DEMARAS. Would you break it down?

Major HUGHES. I have a breakdown here. The bucket trap, $7.85; two ¾-inch globe valves, $5.44 for the two; one ¾-inch globe valve, $2.32; one half-inch globe valve, $1.74; one ¾-inch strainer, $1.75; miscellaneous nipples and L's and unions and T's, $3.57; labor, $20; freight, $2.

Mr. HOLIFIELD. That was on each eight-family unit?

Major HUGHES. One per building. That is on the service line which serves the entire building.

Mr. HOLIFIELD. Now, will you take the last item, please?

Major HUGHES. The last item is Welchboard, which I think has been discussed pretty thoroughly.

Mr. HOLIFIELD. That is $2,805.

Major HUGHES. We show no credit.

Mr. HOLIFIELD. No credit?

Major HUGHES. Yes, sir.

Mr. HOLIFIELD. All right, gentlemen; we will adjourn today's meeting.

Mr. GILPIN. Let me add one more credit in there; it was not shown in Mr. Boyer's breakdown. The question came up when these buildings were occupied; there was trouble with the convectors in the basement. A number of them broke, and the post engineer went in and repaired them. We attempted to get a credit from the contractor. He was not satisfied as to his responsibility, alleging that the post engineer made no contact with him for repairs. It was subsequently determined that the post engineer did contact the contractor through some representative of the contractor, and that the Government was entitled to the cost that the post engineer spent in making those repairs. We received the price from the post engineer, and the contractor has agreed to the price, and it is being put into modification. That price was how much?

Major HUGHES. It is $1,156.68.

Mr. HOLIFIELD. Has settlement been completed, or is this just the agreed amount?

Mr. GILPIN. Settlement has not been made.

Mr. HOLIFIELD. Payment has not been made?

Mr. GILPIN. Modification has been drawn up; it will be deducted from the next pay estimate.

Mr. ROBACK. Then, if the contractor's claims are sustained, it may be that there will be a net outlay by the Government to the contractor?

Mr. GILPIN. That is entirely possible.

Mr. ROBACK. It appears, Mr. Chairman, that the second or subsequent analysis of the cost estimate has resulted in deflation of the original figure by 90 percent. I wonder if that has inspired the district office to reexamine other estimates with regard to other contracts that were made, to see whether adjustment ought to be made in them.

Major HUGHES. Sir, in my capacity there of negotiating with contractors, when an estimate appears to be out of line it is reexamined.

Mr. HOLIFIELD. Does your finding of this 90-percent difference in the "fair cost" estimates cause you to reexamine other estimates to determine what a reasonable contract price would be?

Mr. GILPIN. Mr. Chairman, I feel that is an unfair assumption of the thing.

Mr. HOLIFIELD. I made no assumption. The subcommittee is entitled to raise a question about the validity of the administrative performance in the Office of Estimates in this district.

Mr. GILPIN. I misunderstood your question. I thought you were alleging that, since this one was 90 percent off, it would indicate all the others would be 90 percent off.

Mr. HOLIFIELD. No, I didn't mean that, I just raised the question whether the engineers office might be inclined to reexamine its other contracts, that is all.

Major HUGHES. As I stated, if there are any that appear to be out of line they are reexamined, yes, sir.

Colonel FOOTE. Mr. Chairman, may I point out that the estimate in question was not a fair cost estimate. It was an estimate that came out of the Estimating Section of the Alaska District Office, but

that estimate did not get the review, the scrutiny, and the checking that a fair cost estimate is given.

Mr. HOLIFIELD. I thank you gentlemen for your long hours of testimony and your testimony today. We will adjourn this meeting at this time, and I will have a conference with Colonel Foote later as to the resumption. Thank you very much.

(The hearing was adjourned at 4:30 p. m., September 9, 1952, to be resumed at an unspecified date.)

MILITARY HOUSING CONSTRUCTION IN ALASKA

(Session of September 11, 1952, held in the conference room, District Engineer Building, Elmendorf Air Force Base, Alaska)

THURSDAY, SEPTEMBER 11, 1952

HOUSE OF REPRESENTATIVES,
SPECIAL SUBCOMMITTEE INVESTIGATING
HOUSING CONSTRUCTION IN ALASKA,
OF THE COMMITTEE ON EXPENDITURES
IN THE EXECUTIVE DEPARTMENTS,[1]

Anchorage, Alaska.

The hearing was called to order at 9:10 a. m., Thursday, September 11, 1952, by Hon. Chet Holifield, chairman of the Special Subcommittee Investigating Military Housing Construction in Alaska.

Present: Representatives Holifield (presiding) and Lanham.

Staff members present: Herbert Roback, staff director of the special subcommittee; Thomas A. Kennedy, general counsel of the House Committee on Government Operations; James M. DeMaras, investigator, General Accounting Office; Carl J. Thoma, investigator, General Accounting Office; and Perley Clogston, engineer, Housing and Home Finance Agency.

Present from the office of the Chief of Engineers, Washington, D. C.: Lt. Col. Carl H. Bronn.

Present from the Office of the District Engineer, Alaska: Col. L. H. Foote, District Engineer; Lt. Col. Carl Y. Farrell, Deputy District Engineer; Malcolm R. Gilpin, Jr., Chief, Construction Division; and Warren George, Chief, Engineering Division; Maj. James F. Hughes, Chief, Projects South, Construction Division; Capt. John H. Coleman, Construction Division; and James W. Huston, Resident Engineer, Fort Richardson Residency.

Present from the Alaskan Command: Lt. Gen. Wm. E. Kepner, Commander in Chief, Alaskan Air Command; and Col. John E. Crowley, project officer, J–4.

Mr. HOLIFIELD. Gentlemen, the meeting will come to order and we will try not to detain you gentlemen any longer than absolutely necessary this morning. I understand that Mr. Thoma and Mr. DeMaras and Mr. Clogston have made some requests for additional information to be furnished us as soon as you have it available. For the purposes of the record, I would like Mr. Thoma at this time to make the request formally.

Mr. THOMA. The documents that we have requested the district office to furnish us as soon as possible consist of:

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[1] Name changed to Committee on Government Operations, July 4, 1952.

Photostats of the labor and material take-offs which were used as the basis of establishing the figure of $65,739 for deficiencies in the plumbing system which was included in Colonel Seeman's letter of November 15, 1951, to me.

We also requested photostats of all the back-up sheets and other information which was used by Captain Coleman and Major Hughes in determining the last modification, which I believe was No. 10 to contract DA–48, which shows a credit to the Government of slightly in excess of $10,000.

We also requested the district office to bring in and show us all of the construction progress photographs which were taken on contracts Nos. DA–48, DA–61, DA–135, and DA–193.

I believe that Mr. DeMaras can mention the other items which we requested which were in the form of drawings of certain items which we were interested in.

Mr. DeMaras. Request was made for the preparation of a drawing reflecting in profile and in section the excavation necessary in connection with the relocation of the soil lines.

Mr. Thoma. Does that cover the list you have there?

STATEMENT OF MAJ. JAMES S. HUGHES, CHIEF, PROJECTS SOUTH, CONSTRUCTION DIVISION, OFFICE OF THE DISTRICT ENGINEER, ALASKA

Major Hughes. No, sir. You asked for a breakdown of the factors in determining labor and material cost.

Mr. Thoma. We also asked for an analysis and breakdown of the labor efficiency and cost factors for a period commencing approximately June 1, 1950, to date, as well as the material factor which is used in determining labor and material costs in Alaska. I believe that covers everything, then.

Major Hughes. I have all the items that were requested, except the drawings. Prints are now being run on the drawings. There are three copies of everything there you asked for.

[Major Hughes hands material to Mr. Thoma.]

(The material referred to in subcommittee files.)

Mr. Thoma. Mr. Huston, it was not all of the pictures, just the pictures in the foundation stage we were interested in .

Mr. Huston. I have photographs of the construction stages on Contract 135 only. My intention on progress photographs was to cover the building by type rather than by kind of construction details.

Mr. Thoma. You have none on DA–48 foundations?

Colonel Foote. I have a few in this office, they may suffice.

Mr. Thoma. That is in the excavation stage of foundation specifications?

Colonel Foote. Yes, sir.

Mr. Huston. Starting here, the dates are on each picture in the file.

[Mr. Huston shows file of photographs to Mr. DeMaras.]

Mr. Thoma. Off the record.

(Record closed. Record opened.)

Mr. Thoma. [indicating photostats handed to him by Major Hughes.] These cover all the photostats that were requested.

I would also like to make another statement for the record, if I may. Yesterday when Mr. DeMaras, Mr. Clogston, and I conferred

with Major Hughes and Captain Coleman, we also requested the back-up sheets on material and labor costs as computed in Colonel Seeman's estimate of November 15, 1951, which was, I believe, $101,055. We were informed at that time that these back-up sheets had been lost and that the only detail that could be furnished in connection with any of the figures shown in that estimate was the one covering the $65,739 item in the plumbing system.

Major HUGHES. I would like to make a correction there. We have the entire summary sheet of all items.

Mr. THOMA. From what I understand, this photostat here is the only one.

Major HUGHES. That is a summary sheet of all items.

Mr. THOMA. There is an additional $65,000 item, there must be about 15 items in Colonel Seeman's letter.

Major HUGHES. We could not furnish work sheets, but the summary sheets are there.

Mr. THOMA. We have the summary sheets, they mean nothing without back-up sheets. The summary sheet I don't think is any more than what Colonel Seeman furnished us. This is the one I am talking about. I acknowledged receipt of that, you do have the back-up sheets for this particular item, but not for any of the other items in Colonel Seeman's letter. That is what the record does show.

Major HUGHES. That is right, sir.

Mr. HOLIFIELD. Mr. DeMaras has inspected the pictures which have been furnished him of certain foundation work in Contract DA–48, and has some questions he wishes to ask.

Mr. DEMARAS. This is all the pictures which are available, I gather.

Major HUGHES. Mr. Huston may have some more on DA–48.

Mr. HUSTON. Here are some, these might be duplicates here. [Hands file of photographs to Mr. DeMaras.]

Mr. HOLIFIELD. Mr. Huston, have there been any pictures deleted from these files, to your knowledge?

Mr. HUSTON. No, sir.

Mr. HOLIFIELD. Major Hughes, have there been any pictures deleted from these files, to your knowledge?

Major HUGHES Not to my knowledge; no, sir.

Mr. DEMARAS. The record can show there were no official photographs of the excavation work, prior to installation of forms, other than the one you have marked on the back?

Mr. HUSTON. I haven't examined those pictures.

Mr. DEMARAS. Mr. Huston, there is only one there without forms.

Major HUGHES. Mr. Huston previously stated that he took pictures of this to show the type of construction of the four projects, and one picture of excavations was deemed to be all that was necessary for one type of building.

Mr. DEMARAS. That is quite all right. I just wanted to know and have the record show whether such pictures were available.

Mr. THOMA. In other words, we would like to know if that is the only one, and not have other pictures produced later for us, like these estimates.

Major HUGHES. We made a thorough search, and that is all we found.

Mr. DEMARAS. If that is all, that is what we want the record to show.

Mr. THOMA. Mr. Huston, is that your understanding, that there are no other pictures available for the excavation on DA–48?

Mr. HUSTON. None on excavation. I took those myself.

Mr. HOLIFIELD. Mr. Clogston, do you have any questions to direct to the gentlemen?

Mr. CLOGSTON. No, sir; I think not, except what I was discussing with the captain on this. It looked to me like these underground lines could be kept a little bit higher on the plan the engineers have submitted to us making less excavation necessary in the basement. The captain thinks they couldn't be any more than about 3 inches at the high end. We can study that later. Even 3 inches would save that much excavation the length of every building.

Mr. HOLIFIELD. Mr. DeMaras, do you have any questions?

Mr. DEMARAS. Mr. Huston, or Colonel Foote, I suppose I should direct it to you: Is there anything in the files showing any action taken relative to the gravel fill which is shown by the drawings below the basement slabs? That shows a 4-inch gravel or sand fill.

Colonel FOOTE. There is nothing in the files, to my knowledge. However, I have not researched the files on that particular subject, and I would like to in turn to ask Major Hughes and Mr. Huston if they have any knowledge of such material in the file.

Major HUGHES. To my knowledge there is none, no, sir.

Mr. HUSTON. There is nothing in my files on that particular subject. However, the specifications require 4 inches of gravel under the basement floor slab. The specifications do not require coarse or graded gravel. The site itself is on a gravel moraine. The excavation was made to slightly above bottom of footing, being margin. It was hand-filled and hand-tamped up to the bottom of the slab. The end result was gravel under the slab.

Mr. DEMARAS. All right, now, it was excavated slightly above the footing?

Mr. HUSTON. In general, it was 4 inches above the bottom of the footing. We didn't want to go above the footing, because we didn't want the original ground disturbed.

Mr. DEMARAS. At the time of the change of the relocation of these soil lines, the date of its approval was prior to or following the fine grading of the basements?

Mr. HUSTON. The placement of the underground piping, rather than the placing of the soil lines under the slab, was done prior to any excavation.

Mr. DEMARAS. Prior to any excavation?

Mr. HUSTON. That is right. The contractor came to my office and asked if that could be done. I checked the district office by telephone to see if they saw any reason for making that change. Practically, the reason for the soil lines being hung on the sides of the basement walls was because the building of that particular set of plans would have to satisfy construction at Ladd Field, where, if the soil lines had been level, there is a much higher elevation to go out to the utilities, and obviously it was better installation to put them underground. I think the written approval will be somewhat before much of the excavation.

Mr. DEMARAS. Would you care to say, then, that the contractor was aware of the approval of the district office that the soil lines or under-basement slap piping could go in on this job?

Mr. HUSTON. Yes, sir.

Mr. DeMaras. Prior to excavation?

Mr. Huston. Either prior to or immediately after.

Mr. DeMaras. At least prior to fine grading?

Mr. Huston. In most cases, yes.

Mr. DeMaras. To your knowledge, when did he put in the soil piping under the basement slab?

Mr. Huston. May I check my notes 1 minute? (Checks his notes.) Rough plumbing started under the slab on August 31.

Mr. DeMaras. On August 31. At that time, to reiterate my question, how much fine grading existed in these foundations, if any?

Mr. Huston. I would estimate that the foundations of walls were in place on 15 buildings of the group. That can be checked, however, by more examination of the records.

Major Hughes. I am pretty sure there was only one foundation wall placed after August 31, all but one had been placed by August 31. One was placed on the 1st of September.

Mr. Huston. May I just—there is a difference in our own notes here.

(Mr. Huston confers with Major Hughes off the record.)

Mr. Holifield. What was the question?

Mr. Huston. I told the major my notes showed framing was started on August 5. However, I might be wrong.

Major Hughes. The point I am making is, the question was asked when the foundation walls were completed, I believe Mr. DeMaras asked that.

Mr. DeMaras. I asked how many buildings had the foundation in.

Major Hughes. On August 31?

Mr. DeMaras. But when the soil lines were installed.

Major Hughes. Mr. Huston has stated the soil lines were started August 31. Examination of the records reveals only one foundation wall poured after August 31, that was poured on September 1. All but one building had the foundation walls in on the 31st of August. Am I right, Mr. Huston?

Mr. Huston. I don't remember those dates, but if you took notes——

Major Hughes. I took notes on the records.

Mr. Gilpin. May I ask a question? There seems to be a misunderstanding of the question Mr. DeMaras has asked to which Mr. Huston replied. I think the question was asked, at the time of the soil pipe being placed in with relation to the excavation on the job. I think Mr. Huston replied that the soil lines were put in prior to any excavation, which appears to me to be an obvious misunderstanding of the question, because the soil lines were put at a depth of some 6 to 7 feet, I presume, below ground level when excavation was made, so I would like to have that clarified for the record.

Mr. Holifield. I believe that clarification is pertinent, because I believe Mr. Huston did misunderstand that question.

Mr. DeMaras. To your knowledge, Mr. Huston—may I reiterate my question in part—was there any fine grading of the basement floors prior to the installation of the under-slab piping?

Mr. Huston. Yes.

Mr. DeMaras. Could you tell me how many buildings there were in which fine grading took place?

Mr. Huston. To my memory, the excavation was done after all the fine grading was done. I have a photograph on contract 135 which in general shows that method.

Mr. DeMaras. Then I will ask the question in another manner. Was all fine grading completed prior to August 31, fine grading of basement slabs?

Mr. Huston. I do not know without examining the record.

Mr. DeMaras. Mr. Chairman, it is important to technically determine this, for the simple reason that in Major Hughes' compilation there is a $45,000 credit to the contractor for hand excavation, for the purpose of installing these soil lines. If the excavation was performed, the contractor should be allowed such a credit. If it was not performed, then he certainly should not get credit.

Mr. Holifield. Colonel Foote, will you furnish the subcommittee, as soon as the records have been searched, a letter on that point?

Colonel Foote. Yes, sir, such a letter will be provided. May I suggest, Mr. Chairman, that perhaps we can establish that point to the subcommittee's satisfaction at this time. I believe that I am correct in my understanding that the same construction method was followed throughout contracts 48, 61, and 135. I believe Mr. Huston has here with him a photograph on a construction on contract 135, which we can establish as representing a condition that existed throughout similar construction on contract 48.

Major Hughes. I think, sir, the procedure, step by step, of the construction can be explained, looking at the photograph, which will show the fine grading of necessity would have to be done, or should be done the most economical way for the contractor, before the walls were erected. In other words, it would be done as soon as the foundation forms were stripped, as soon as the foundation was stripped, the foundation forms, before the basement walls were poured.

Mr. DeMaras. I know, but you can't strip the forms before you pour the wall.

Major Hughes. These are footing forms. The fine grading would be done as the building was in progress of construction, and some of the records will show, the pictures and inspectors' reports, that as these buildings progressed the footings were poured first and the walls formed and fine grading done, and then the carpenter work begun, and the record shows the buildings were framed prior to August 31, and the pictures will show that.

Mr. DeMaras. From my limited understanding of concrete work, I presume he was using full-sized forms?

Major Hughes. Yes, sir.

Mr. DeMaras. In other words, removable forms for his walls?

Major Hughes. Yes, sir.

Mr. DeMaras. If so, were they the full height of the basement walls?

Major Hughes. Yes, sir.

Mr. DeMaras. If he installed those, he necessarily had to have braces?

Major Hughes. Yes, sir.

Mr. DeMaras. I think all fine grading would be destroyed in destroying the forms.

Major Hughes. The fine grading was done after the walls were poured, prior to framing work.

Mr. DeMaras. I do not debate that at all.

Major Hughes. The building walls would not be put on prior to fine grading.

Mr. DEMARAS. That is a logical construction. By the same token, the contractor had full knowledge of this and could either submerge his lines or——

Major HUGHES. But, sir, the plumbers were on strike.

Mr. DEMARAS. I don't think that is too material, to be quite frank with you. You can give a man an extension of time for a strike, but I do not think you can give him money. This is what contract?

Mr. THOMA. It is 135.

Mr. DEMARAS. Mr. Huston, is this, can I ask, would you say that is hand excavation or machine?

Mr. HUSTON. It is, or had to be hand excavation, in order to get under the footings for the partition walls. The photograph shows various cases.

Mr. CLOGSTON. I thought Major Hughes said that if the buildings were not up the builder would have used a trenching machine to dig the trenches.

Mr. HUSTON. On this particular job, the plumber had to do his own excavation. He didn't start work until the 26th of July.

Mr. CLOGSTON. Wouldn't it be common practice to bury the footing, so you could run a trenching machine over it? Even if you had to repour some of the footings, it would be cheaper than to dig all the trenches by hand.

Mr. HUSTON. If the plumber had done his work that way, it would interfere with the primary contractor forming up the foundation walls.

Mr. CLOGSTON. I think it would interfere much less to have a machine in and out rapidly than to have a bunch of laborers in there digging by hand.

Mr. HUSTON. We can establish the details of this digging by hand.

Mr. DEMARAS. This submersion of soil lines is common to all contracts here. According to that, all contractors had knowledge that it was going to be incorporated in their work.

Mr. HUSTON. Only two contracts involved this type of building. We approved contract 48, and it followed naturally that we would approve 135, 65, and 193.

Mr. DEMARAS. Which was the last contract?

Mr. HUSTON. That is 193.

Mr. DEMARAS. Was that done by hand or machine?

Mr. HUSTON. It was done by hand.

Mr. DEMARAS. It was done by hand on 193, too, and yet they knew about it.

Mr. CLOGSTON. It was done by hand at $10.50 a yard, when it could have been done by machine for 50 cents.

Captain COLEMAN. The last contract, 193, was done by machine. The rest were done by hand. It is normal to do this type of work by hand. Very, very seldom is it ever done by machine. The contractor did not realize when he started that the extra costs up here of labor—I will admit it was his mistake, but he had not done plumbing up here before, and he thought it would be cheaper to do it by hand than by machine. And we did not catch it on the first three contracts, only on 193 did we catch it, and that was done by machine.

Mr. HOLIFIELD. Off the record.

(Record closed: Record opened.)

Captain COLEMAN. It probably is still debatable as to which is cheaper, to do it by hand or to do it by machine, because you have to remove so much excess dirt if you are doing it by machine that it makes the backfill and tamping much more costly.

Mr. DEMARAS. Colonel Foote, I would like to have a copy of this photograph here submitted, on DA–135, building 5501–1; 5–16–51 is the date of the photograph. Three copies.

Colonel FOOTE. Those will be submitted. Mr. Chairman, we have a directly contradictory statement in the record, I believe, sir, on how the excavation for the under-slab piping was accomplished on contract 193. Mr. Huston has stated it was done by hand; Captain Coleman has stated it was done by machine. I would like to clarify that point at this time. Mr. Huston, would you care to modify your statement?

Mr. HUSTON. Yes; I will modify my statement regarding contract 193.

Colonel FOOTE. How was that excavation for the under slab accomplished on contract 193?

Mr. HUSTON. I would have to say that I do not recall, sir.

Mr. THOMA. May I make another request of Colonel Foote?

Mr. HOLIFIELD. Go ahead.

Mr. THOMA. We would also appreciate having three copies of photograph 135–8, dated April 25, 1951.

Mr. HOLIFIELD. Is that all, Mr. Thoma?

Mr. THOMA. Yes.

Mr. CLOGSTON. Captain Coleman has stated that even at the large price difference between hand and machine excavation, the cost would be nearly the same, due to the added cost of more dirt handled and more backfill in the case of machine excavation. I might agree with that if the prices were nearer equal, but at the great difference in price I believe it would still be considerably cheaper by machine if it could be done. Then there was one question discussed yesterday, which we discussed in an open session, unofficial meeting, on which we could not reach 100-percent agreement. And I believe I should ask Colonel Foote about the 4 inches of gravel shown clearly on the drawings under the basement floor slab. In your opinion, Colonel, in bidding, would the bidders bid on excavating 4 inches below bottom of the slab and replacing it with specified sand or gravel?

Colonel FOOTE. That would depend, of course, upon the bidder's knowledge of the foundation materials, the native materials.

Mr. CLOGSTON. Why would it? It is shown clearly on the drawings for all bidders to bid on. Wouldn't they bid on the drawing, unless they asked for clarification so all bidders could bid on the same basis?

Colonel FOOTE. I do not believe, Mr. Clogston, that indication on the drawing would cause a bidder to waive knowledge of ground conditions. That is a highly speculative matter, as to how someone else would interpret that requirement.

Mr. CLOGSTON. It might depend on how badly the bidder wanted the job. If he was very anxious to get the job, he might cut some corners and figure he would be allowed to when he built it.

Mr. HOLIFIELD. In your fair-cost estimates of this particular item, did your engineers make a cost figure on that point?

Colonel FOOTE. I am unable to answer that question without going into the records, sir. Perhaps Mr. Gilpin can answer it offhand.

Mr. GILPIN. I cannot answer whether it is in the fair-cost estimate or not.

Mr. HOLIFIELD. The point involved, of course, is if this was a windfall, unexpected windfall benefit to the contractor, certainly it should be considered in making any kind of adjustment.

Mr. GILPIN. The point I would like to make on this question Mr. Clogston has posed is that there is no definition on the drawing that requires the contractor to excavate. It shows on the drawing gravel under your slab. It shows by the nomenclature there, cross hatching below the slab, which might be dirt or any other type of material. The gravel and sand which have been referred to as fill under the slab are called for in the specifications only under "fill," and it can readily be interpreted, where fill is called for, that 4 inches of gravel will be required directly below the slab.

Mr. CLOGSTON. I would like to state that the specifications clearly call for 4 inches of sand or gravel under the basement slab. The drawing, as is customary, shows clearly 4 inches of coarse gravel under the slab. Certainly any bidders not thoroughly familiar with conditions here will include that in their bid. And any who are familiar should either include it or ask whether it will be required under the circumstances.

Mr. HOLIFIELD. Mr. Thoma, do you care to make any statement at this time?

Mr. THOMA. I have a fair cost estimate here on contract DA–61, which shows excavation estimated on that particular contract as 1550 cubic yards, and they have established there a unit cost of a dollar a yard. In going over this fair cost estimate yesterday, in connection with some other matters we had under consideration, it seems these fair cost estimates were somewhat high. So that dollar figure would probably be very conservative, as far as the maximum would go. Now, it doesn't indicate here just what type of excavation it should be, whether it should be hand or machine, but in view of the discussion on difference in prices of $10.50 for hand excavation as against approximately $0.50 a cubic yard for machine excavation, the fair cost estimate is apparently based on machine excavation.

Mr. HOLIFIELD. Do you have any response to that, gentlemen?

Mr. GILPIN. I would like to make a response. I do not quite understand the point Mr. Thoma is making as far as the excavation is concerned. The excavation in the fair cost estimate to which he has referred is the over-all machine excavation for the excavation of the building. The excavation in question prior to this was the excavation under the plumbing, and would have been performed under the plumbing subcontract, and not as part of the machine excavation for the building.

Mr. THOMA. I brought up this point particularly because Captain Coleman said there was some doubt in his mind as to whether machine excavation would be cheaper than hand. He seemed to indicate machine would be more expensive.

Major HUGHES. I think that Mr. Gilpin's statement is correct. That is the excavation for basements.

Mr. DEMARAS. This is the excavation for basements?

Major HUGHES. Yes.

Mr. DEMARAS. Isn't this compilation in connection with this piping change?

Major HUGHES. I believe that is a fair cost estimate for the whole contract.

Mr. DEMARAS. For the whole contract, or in connection with this piping change?

Major HUGHES. I don't think so, sir. That is the fair cost estimate for the whole building. In other words, it includes all items, plumbing, concrete, everything.

Mr. DEMARAS. This includes all items?

Major HUGHES. Yes, sir.

Mr. THOMA. I would like to mention, in this fair cost estimate, the excavation figures shown in it apparently include the excavation at least for the 2- and 2½-inch drainage lines which pick up the waste from the laundry trays and kitchen sinks, because there was no separate figure shown for that excavation under the heading of plumbing, piping, and fixtures.

Major HUGHES. There is basement excavation in there, if you will look down farther, I am sure.

Mr. THOMA. Oh, "Trench Excavation," that probably is it. But even that is figured at a dollar a yard. It is the same type of trench, I assume, as for the other. Still, it shows 20 cubic yards a building at $1 a yard. Apparently the fair cost estimators figured that trench would be the same as this so-called general excavation, that it would be the same price on each, so they have one for general excavation at $1 a cubic yard, and one for trench excavation at $1 a cubic yard. So it seems to me the statement made by Mr. Gilpin would have no meaning at all, because if trench excavation was a more expensive deal, it seems to me the fair cost estimators would have taken that under consideration.

Major HUGHES. Captain Coleman would like to make an answer.

Captain COLEMAN. I do not know where they got their figures of a dollar a yard. They may do that in the States, but that is a good 4 hours' work for any man.

Mr. CLOGSTON. May I suggest that probably they estimated this on the basis of trenching machine work, as we were saying it should be done if possible.

Captain COLEMAN. There are lots of factors that go into those figures in defining the estimate.

Mr. THOMA. As I understand it, the contractor submitted a bid with a cost breakdown. What does he show for excavation cost and trench excavation? I believe that is available in the files of the resident engineer.

Major HUGHES. They don't break it down that far, sir; they break it down to money value, to a total lump sum. We can make an estimate from what is shown on the fair cost estimate and get a fair idea of what unit price they used.

Mr. HOLIFIELD. Will that information be furnished us?

Colonel FOOTE. Yes, sir. I believe we can get it right now, sir.

Mr. HOLIFIELD. All right, we will wait, if you can get it immediately.

(Major Hughes left the room.)

Mr. DEMARAS. I would like to ask a question, if I may.

Mr. HOLIFIELD. The subcommittee will be in order. Mr. DeMaras wants to ask a question in the absence of Major Hughes.

Mr. DEMARAS. Colonel Foote, there was some discussion here about excavation. I would like to ask one direct question. The drawings show 4 inches of gravel fill under the basement slab. Does that mean the engineers or the Government have the right to require excavation to that line, which is 4 inches below the slab, without any extra payment, with consideration that that cost of excavation is included in the lump-sum bid?

Colonel FOOTE. I should answer that in the affirmative; yes, sir.

Mr. GILPIN. May I interject something as to that point? I would say the Government would have the right to require the contractor to excavate beneath the basement to insure 4 inches of gravel. If 4 inches of gravel is satisfactory, excessive excavation is not required.

Mr. HOLIFIELD. In that case, would the Government be entitled to compensation for the lack of excavation according to the bid by the bidder?

Mr. GILPIN. I do not interpret the plans or the specifications that way, sir. I believe the plans and the specifications are established to show the 4 inches of gravel, be it there or they have to place it.

Mr. HOLIFIELD. It seems to me in any instance where an adjustment can be made in favor of the contractor, it is made without financial consideration, and where the adjustment has to be made to the disadvantage of the contractor, the Government pays for it.

Mr. GILPIN. I would like to hear that again.

Mr. HOLIFIELD. Will you please read that back to Mr. Gilpin?

(The chairman's last statement was read by the reporter.)

Mr. GILPIN. Would you explain to me a little, off the record, what you are driving at?

Mr. HOLIFIELD. Off the record.

(Record closed. Record opened.)

Mr. GILPIN. You mean, you are setting that up as the practice?

Mr. HOLIFIELD. I am making that as a comment on the evidence that is before the subcommittee at this time.

Mr. GILPIN. O. K., sir. I do not believe that the implication of the statement is what is followed by the Corps of Engineers, Alaska District. Every case is weighed on its own merits as to what is established by the plans and specifications, as to whether the Government is entitled to any credits, or whether the contractor is entitled to an extra payment under the conditions that actually existed or on the buildings actually constructed.

Mr. HOLIFIELD. Does your statement, Mr. Gilpin, apply in general to the procedure of the Army Corps of Engineers in Alaskan construction?

Mr. GILPIN. It does, sir.

Mr. HOLIFIELD. Does it apply to this particular contract under consideration?

Mr. GILPIN. It does, sir.

Mr. CLOGSTON. I would like to ask one more question on the same subject. It seems that the engineers were aware, had been aware for some time, that gravel was not required, that it was not required to excavate 4 inches additional below the slab and place 4 inches of gravel. It would seem that the plans and specifications should have been clarified by removing this requirement and stating that if it were found in a few buildings advisable to place 4 inches of gravel, then the contractor would be paid for same.

Mr. HOLIFIELD. Are there any further questions by the staff?

Mr. ROBACK. I would like to ask a general question. What do you do with this contract experience, where specifications are peculiarly drawn or ambiguous? Is that information pooled and applied elsewhere to new contracts, so you won't have a recurrence of problems you wrestle with sometimes and that impose extra cost to the Government?

Colonel FOOTE. The contract plans and specifications on repetitive structures are being constantly revised in the light of experience on prior construction.

Mr. ROBACK. Who writes up the experience here—and by "here" I mean the troubles you have encountered—so that that information can be systematically applied? Who of your office writes that up?

Colonel FOOTE. The application of that experience is made in the course of the review conference prior to the issuing of plans and specifications and invitations to bid on new work.

Mr. ROBACK. Do the conferees have available systematic analyses?

Colonel FOOTE. The conferees do not have available a formal written record on that matter. The construction personnel who have supervised prior contracts are present at this review conference.

Mr. ROBACK. And if there is a large turn-over, presumably you go through the same experience each time?

Colonel FOOTE. Major Hughes, would you like to comment on that?

Major HUGHES. At any time difficulty over plans or specifications is encountered it is corrected by a change order. A copy of that change order goes to the Engineering Design Division. On repetitive plans those change orders are used to make the corrections on future plans and specifications before they are published.

Mr. ROBACK. In cases where no change orders are issued, for example in the problem of whether you should have cut-off valves on the convectors, what happens?

Major HUGHES. A copy of the final correspondence goes to Engineering Design.

Mr. ROBACK. On the next specification going through, is that worded so there won't be any question as to what is meant?

Major HUGHES. That is the intent, that it would be, and I think in most instances the Engineering Design Branch has picked up these discrepancies, omissions, and errors and included the corrections in future specifications and plans. These four plans we are discussing here, this family housing, were all prepared at approximately the same time, with a few months between them, the contracts were awarded very close together.

Mr. ROBACK. That information is available to the architect-engineer, in a case where he writes the specifications?

Major HUGHES. Yes, sir; the Design Branch sends in that information to the architect-engineer.

Mr. ROBACK. Colonel Foote, do you get abstracts of such information from the higher authorities, reviewing the experience on other jobs that would be of value in writing new specifications and administering your contracts?

Colonel FOOTE. As a general statement, we do not. However, we do obtain from higher authorities at any time that we undertake a type of construction for which we have no precedent in this district, a type of construction that we have not actually accomplished here, we

obtain through our Division office from some other engineering district copies of the plans and specifications that they have used in accomplishing such work.

Mr. ROBACK. Well, what about the specific analysis of the administration of contracts, so you can avoid errors, mistakes, such as have shown up on the analysis of these contracts? Perhaps that is a question that might be directed to a higher authority, Mr. Chairman, but it is something the subcommittee might well consider.

Colonel FOOTE. I might state, sir, that we have voluminous directives and instructions in the form of orders and regulations, multiple letters, circulars, guide specifications, typical plans, which would certainly accomplish to a large degree the thought I believe you have in mind. Those are constantly being modified in the light of current experience.

Mr. HOLIFIELD. Are there further questions?

Mr. THOMA. There is one further question that I have, Mr. Chairman. I would like to ask Major Hughes a question to confirm my understanding as to this last modification on contract DA–48. In the hearing on Tuesday, I got the definite understanding that this modification, which shows a credit to the Government of slightly in excess of $10,000, is the final closing of this particular contract. Is that right? That is to include all credits due the Government.

Major HUGHES. I do not say it is the final closing. It is all the credits due the Government, so far as I know.

Mr. THOMA. Then there is one particular statement I wish to make at this time. Due to lack of time, I have not had a chance actually to make a review of the credits to be allowed as shown there. Due to the voluminous report that we have made, that would take several weeks. However, it is my opinion that there are other items on which the Government should be given credit, and I would like to cite what I would call a typical example. On contracts DA–48 and DA–61, steam run-outs are exposed in the dining room and the entrance halls. This installation seemed to have saved the contractor considerable money, and I would like at this time for Mr. Clogston to give us his interpretation of the contract drawings covering that particular item.

Mr. CLOGSTON. The contract drawing is perfectly clear to me; it indicates clearly to me that these steam run-outs, that is, the connections to the convectors, should have been concealed, since there is a large-scale detail on the floor plan which shows them concealed by making a small notch in the top of the joists, which, of course, is near the bearings, since the radiators are against the exterior wall. It would seem that this detail should have been followed, thereby providing a better-looking dinette space; or if for some reason the engineers did not want to follow this detail, there should have been a credit, since the exposed installation would be considerably cheaper than the concealing of the lines.

Mr. THOMA. I would like to make one comment there which has not been covered, and that is that the same plans with certain modifications were used for 135 and 193, and if I remember right, the steam run-outs in the dining rooms and the entrance hallways are concealed.

Mr. CLOGSTON. I failed to state, also, that the detail shows steel plates bolted to the side of the joists, and these were not installed.

Mr. HOLIFIELD. I would like to bring the meeting to a close with a short statement.

Mr. GILPIN. Could I put something into the minutes before you close?

Mr. HOLIFIELD. Go ahead.

Mr. GILPIN. This is with reference to the Welchboard. The only information I have been able to obtain since the last meeting, and I would like to present the information obtained, is from the Boen-Sealand Co., of Seattle, Wash., the contractors on contract DA–95–705–eng–51, for the construction of 14 eight-family units at Eielson Air Force Base, bids for which were opened May 10, 1950, and the award made June 26, 1950. Their representative furnished this information at my request: That in preparing their bid, the quotation for striated plywood was $192 per thousand square feet, which figure was used in the preparation of their bid; that upon the award of the contract, the same quotation was received; that they were unable to place an order for striated plywood at that price, or any price, for immediate delivery date, even for the small quantity involved; that Boen-Sealand investigated the possible substitution of Welchboard, but rejected its use except as a last resort, because, first, that type of material might be subject to distortion because of the applied hard surface in the extreme temperature at Eielson, and, second, the estimated cost of installation would be too high due to handling, fitting, and nailing; that they decided, since the striated plywood would not be required on the job until sometime in the summer of 1951, to await the conditions of the supply market; that they were finally able, after much difficulty, to place and have accepted an order for striated plywood on January 2, 1951, with delivery promised March 1, 1951; however, delivery was not made until April 19, 1951, and then only after exercising every means of pressure on the supplier; that prices were paid for 27,776 square feet of 4 by 8 sheets at $236 per thousand, and for 22,400 square feet of 4 by 10 sheets at $251 per thousand, less than carload lots. The above all refers to Seattle origin. It is desired to point out, on contract DA–48, that Welchboard arrived on the job site on September 12, 1950, and application started the same day and continued in October, until the weather prevented safe installation, and that application was resumed in April 1951 and all buildings completed by June 12, 1951; that the first building was occupied in early May 1951 and the last building in early August 1951. This contract DA–48 was scheduled for completion February 15, 1951, but was subject to delay occasioned by a carpenters' and plumbers' strike during the summer of 1950.

That is all I wanted to put in, sir.

Mr. THOMA. There is one other statement I wish to make that I overlooked, and that is, in connection with contracts DA–61, 135, and 193, there has been no mention of the credits due the Government on those contracts for certain deviations from the contract plans and specifications, which were not as extensive as they were on DA–48. We have not had an opportunity to examine all the change orders for those contracts, so it is possible that some of these credits that are due the Government have been covered in change orders. However, we will have to hold this matter open until we have had a chance to check into it.

Mr. ROBACK. Some information was requested which I do not believe was supplied. For example, request was made for the aggre-

gate architect-engineer fees received by Foss & Malcolm in connection with these family quarters.

Colonel FOOTE. Mr. Chairman, I would like to introduce into the record at this time the summary of the payments made to Foss & Malcolm, architect-engineers, on the eight-family quarters. I believe there are three copies.

Mr. HOLIFIELD. The statement will be received by the subcommittee.

Colonel FOOTE. I should like also to introduce, in triplicate, a complete tabulation of unit costs of housing constructed in Alaska.

Mr. HOLIFIELD. The statement will be received.

Colonel FOOTE. If desired by the chairman, I have available here, sir, in triplicate, photostats of the service record and of the first report submitted by Mr. Donald Gordon.

Mr. HOLIFIELD. The subcommittee would like to have that information also.—Off the record.

(Record closed. Record opened.)

Colonel FOOTE. I have another item which I would like to get into the record, if I may.

Mr. HOLIFIELD. All right, submit any material you feel pertinent.

Colonel FOOTE. In connection with the data already presented, I would like to explain that the information on abstracts of bids is not quite ready for submittal yet.

Mr. HOLIFIELD. That can be mailed to the subcommittee at Washington.

Colonel FOOTE. I would like to introduce into the record a letter signed by my predecessor, Colonel Seeman, directed to Patti-MacDonald, on October 8, 1951. I will furnish copies of that.

Mr. HOLIFIELD. You may furnish a copy for the record.

Colonel FOOTE. I would like to read it at this time.

(The letter referred to was read by Colonel Foote and follows:)

OCTOBER 8, 1951.

PATTI-MACDONALD CONSTRUCTION CO.,
Station No. 1, Anchorage Alaska.

GENTLEMEN: Reference is made to your letter of September 28, 1951, requesting that this office furnish certain releases to you in connection with contract No. DA–95–507–eng–48.

As you are no doubt aware, your performance under this contract has been under investigation for several months. Certain deficiencies were communicated to you, and you were directed to make the necessary corrections. This office regrets very much to be placed in such a position but is constrained to say that your performance to date on this contract has been unsatisfactory. This performance has not only resulted in general criticism of the Patti-MacDonald Co., but also has resulted in much criticism being leveled at the Alaska district. Because of the many deficiencies, and your failure to act in good faith and correct those deficiencies as they were brought to your attention, this office has expended, in time and money, for inspection, far beyond the amount normal for this type of project.

This office is again compiling and will in the immediate future present to you a list of the deficiencies and directions as to the action expected of the Patti-MacDonald Co.

Needless to say, this matter is of great concern to this office and should be, I believe, of great concern to the Patti-MacDonald Construction Co.

I feel that it is necessary to advise you at this time that the performance of the Patti-MacDonald Co. on this contract, and the evident lack of good faith, has been such that I consider it very doubtful that I would recommend the award of any further work of this type to the Patti-MacDonald Co.

For the basic reasons outlined above, this office is not in position to relieve Patti-MacDonald Co from any liability which may legally devolve upon you as a result of contract No. DA-95-507-eng-48.

Yours very truly,

L. E. SEEMAN,
Colonel, Corps of Engineers,
District Engineer.

Mr. HOLIFIELD. What is the date of that letter?

Colonel FOOTE. It is October 8, 1951.

Mr. ROBACK. Off the record.

(Record closed. Record opened.)

Mr. HOLIFIELD. You have some further material to submit?

Colonel FOOTE. I would like, sir, to ask for two statements at this point, which I believe are material, in view of the opinion expressed by Mr. Clogston a minute ago as to the savings to the contractor ensuing from the relocation of steam run-outs in dining alcoves in family quarters. I would like Captain Coleman, if he will, to express his view and opinion of that particular change and any economies that might be involved.

Captain COLEMAN. I felt there was little, if any, economy in not notching the joists and putting in the little steel plates, because the contractor later had to come back and cover this pipe and paint it and put on two floor plates, receiving plates, which I felt pretty much offset the cost of the notching. Furthermore, we would have gotten quite a weakening of the joists if they had been notched as deeply as they would have had to be, with 1- or 1¼-inch pipe going through the floor there would have to be a pretty big notch in the joists right at the bearing point.

Mr. HOLIFIELD. Is there an additional statement from one of your members?

Colonel FOOTE. Yes, sir. I would like Major Hughes to state at this time the basic underlying reason why the bathtubs which were not in accordance with the specifications were accepted and incorporated in the work.

Mr. HOLIFIELD. Major Hughes.

Major HUGHES. Sir, it was discovered that the bathtubs would not meet the specifications as outlined in that they were not as deep as the bathtubs specified. The matter was discussed, whether or not to require the contractor to remove those tubs and replace them with the tubs specified. In view of the demand for quarters in Alaska at that time, military personnel were living in basements, shacks, trailers, anything they could find, it was decided that it was best to leave those bathtubs in because the Government in future action, in a revised specification, had ruled that they were acceptable to the Government. The monetary loss to the Government would have been in excess of half a million dollars in rental of those quarters if we had required the contractor to pull the tubs out, and it would have delayed completion of the quarters to put in the specified tubs. The Government at that time, the Army had practically no quarters to furnish military personnel and was paying an average of $150 per month for military personnel to live off the base. And 51 buildings, 8 quarters per building, at $150 a month, is in excess of $60,000 a month. Every month we delayed turning over those quarters meant the Government would be putting out $60,000 a month in quarters allowances. And we estimated it would have taken approximately 9 months to replace those

tubs, to pull out the old ones and replace them with the specified ones, and that would have been in excess of half a million dollars. I think that the district engineer was entirely justified in accepting those tubs, with a credit from the contractor for the difference in cost.

Mr. HOLIFIELD. We do not want to delay this meeting very much longer on these points which may be argumentative.

Colonel FOOTE. Before closing, I have just one brief comment I would like to offer, if you are about to close.

Mr. THOMA. I want to make a short, pertinent statement on the bathtubs. We were more concerned with the amount of credit allowed than we were that they should be left in or taken out.

Mr. HOLIFIELD. I think the subcommittee is in accord with your statement as to the necessity for immediate occupancy of the quarters, and our concern was, of course, in view of the cost estimates that had been submitted to us, that the Government receive adequate compensation for any change orders made to the benefit of the contractor.

Major HUGHES. Sir, I made that statement because in an informal meeting, Mr. Thoma indicated that the tubs should have been removed.

Mr. THOMA. Actually, if they had caught it at the proper time, they should have been removed, that is what I said, and I said the Government could have forced the contractor to remove them, even at the time we pointed it out to the district office.

Colonel FOOTE. In that connection, might I point out that the inadequacy of the tubs, insofar as compliance with the specifications was concerned, was well known to us prior to the time that Mr. Thoma arrived in the theater to make his investigation.

Mr. THOMA. I beg to differ with you on that, because neither Colonel Seeman nor Colonel Dorland were aware of the fact that the tubs did not meet specifications, because they were surprised, in fact we had quite an argument, they claimed I was wrong until their own engineers went out and measured them.

Colonel FOOTE. I think it is a matter of judgment as to how much detailed information should be submitted to the executive office in connection with all operations, but the information was in the hands of the inspection organization and had been determined prior to your arrival.

Mr. HOLIFIELD. Mr. DeMaras, did you want to make a statement in regard to the footings?

Mr. DEMARAS. In computing this final change, this present change, modification, you computed the ditching as an allowance of credit to the contractor?

Major HUGHES. Yes, sir.

Mr. DEMARAS. And to where did you compute that excavation, the quantity, to what line?

Major HUGHES. I will have to refer you to Captain Coleman; he made the computation.

Mr. DEMARAS. To what line did you place your computation? I am talking about the grade line, top.

Captain COLEMAN. I can't give you an exact line, sir. I figure the average is a 2-foot-9 ditch.

Mr. DEMARAS. From where?

Captain COLEMAN. From the underneath side of the lower side.

Mr. DEMARAS. Then that is the line you computed to in your grade?

Captain COLEMAN. Yes, sir.

Mr. DeMara. From underneath the slab?

Captain Coleman. Yes, sir.

Mr. DeMaras. Colonel Foote said the Government could well require excavation to the 4 inches below the slab line if it so chose. Don't you think an adjustment in your computation was in order?

Major Hughes. It has been placed in the record that the contractor excavated to practically the bottom of the footing and replaced it.

Mr. DeMaras. It has been placed in the record that excavation was made to the bottom of the footing, but it has not been placed in the record when this replacement was made. There is nothing in the record as to when that replacement was made.

Mr. Clogston. The photographs we saw indicate the excavation was carried out to the bottom of the footing. Statements by Major Hughes had just been made to that effect. The bottom of the footing is even lower than the bottom of the 4 inches of gravel. It seems that the contractor should have done his trenching while the grade was at that point, in other words, before he did any backfilling. Therefore, it would seem that the excavation should be figured from the bottom of the footing instead of even from the bottom of the gravel.

Major Hughes. That can be explained by the fact that during the time the contractor was pouring his footings and placing his walls, the plumbers were on strike. In order not to delay completion of the family housing, the contractor continued with what he could do. Not to delay the carpenters he had working, which meant in order not to have to fill in the material under the upper floor, he placed his material while the excavation was still open, before it was covered. Therefore the plumbers couldn't get in to put in the soil piping and to do the trenching until the plumbers came off strike.

Mr. Clogston. In reply to that, I would say if I were doing the work, I certainly would not pay for labor to backfill over an area where I knew I was going to have to dig trenches. I might backfill the rest of the basement, but in an area where trenches were to be dug, I would leave the fill out, rather than pay to have it placed in there and then pay $10.50 a cubic yard to have it taken out again.

Mr. Kennedy. May I ask a question in relation to the letter forwarded to Patti-MacDonald Co.? Was any reply made by the Patti-MacDonald Construction Co. to that letter of Colonel Seeman's? Was there any attendant correspondent which specifically followed that letter?

Colonel Foote. There is subsequent correspondence.

Mr. Gilpin. I do not think there was any direct reply.

Colonel Foote. I do not believe, sir, we have subsequent correspondence that could be related as a specific reply to that.

Mr. Kennedy. Then is it fair to assume that the charge of unsatisfactory work met with silence on the part of the contractor?

Colonel Foote. I believe I am correct in stating that while your statement is perfectly correct as far as the record is concerned, it resulted in considerable immediate activity in the correction of deficiencies.

Mr. Kennedy. Are there any other such type letters in your files to contractors in relation to the remainder of the work, expressing any dissatisfaction with the work, or reaction to the project?

Colonel Foote. Mr. Kennedy, quite a percentage of our construction contracts have run into delays and controversies, it is part of our

everyday business here. To answer your question specifically, yes, sir, we have competent, voluminous files of communications with our contractors as to deficiencies, delays, inadequacies of material. That is part of the job of contract administration. There are frequently emergencies, some minor, some major.

Mr. KENNEDY. Colonel Foote, is there any letter in the file, in summary fashion, at the conclusion of a particular project or contract, such as you offer here in the letter to Patti-MacDonald?

Colonel FOOTE. I would like to defer to Mr. Gilpin on that question. Do you know of any such letter?

Mr. GILPIN. I do not quite understand Mr. Kennedy's question.

Mr. KENNEDY. It is apparent in the case of Patti-MacDonald that there was a summary evaluation made by the district engineer, and he expressed the opinion that the work had been highly unsatisfactory and had cost the Government far in excess of what might be usual. Was it administrative policy to evaluate the work of contractors at the conclusion of their projects, or was this merely an isolated case, in which Colonel Seeman forwarded this letter?

Mr. GILPIN. This is one job where Colonel Seeman found it necessary to write such a letter.

Mr. CLOGSTON. I think I should raise one more question, at least, on these drawings submitted, showing height of pipe beneath the basement floor. Is there any reason, Captain Coleman, why the storm sewer needs to be so deep? It is shown here approximately a foot below the sanitary sewer.

Captain COLEMAN. I noticed that, too. No, sir; that can be approximately the same level.

Mr. CLOGSTON. There are no fittings on the storm sewer, except an elbow to turn at 90° from the vertical stack to the line under the floor. I don't see why the top hub of the elbow couldn't be even flush with the finish floor, but say at least at the bottom of the floor, which would mean it would be well above the sanitary sewer, instead of a foot below, as shown here.

Captain COLEMAN. Probably it could be 2 or 3 inches below.

Mr. HUSTON. No doubt.

Mr. CLOGSTON. In other words, this drawing doesn't represent in any way what we asked for yesterday. We asked for the pipe to be shown at the minimum distance under the slab instead of being 3 or 4 feet below the slab, which is unnecessary.

Captain COLEMAN. He couldn't have drawn it that way, he measured it that way, but it is not drawn that way.

Mr. CLOGSTON. I do not understand that.

Captain COLEMAN. He didn't want to show one pipe on top of the other. My point is, in this drawing he couldn't have shown the storm pipe above the sanitary sewer.

Mr. CLOGSTON. Yes, he could have. This doesn't represent the picture in any way. I think this should be redrawn and mailed to us. We asked, also, for a section across here, showing what you consider the minimum amount of excavation for each line and these pipes should be raised up to the very minimum distance below the slab.

Captain COLEMAN. Then I think we had better give you a detail of this section right here.

Mr. CLOGSTON. All right, with this plan, except you probably would want to show the lowest depth.

Captain COLEMAN. We can furnish a detail of this which will be better for your information.

Mr. THOMA. Could you have that ready by Monday?

Captain COLEMAN. We will have it ready by noon.

Mr. HOLIFIELD. Certain materials which have been requested can be mailed to us if they are not ready before our departure on Monday. And I am assuming that those materials that have been asked for will be mailed, if there are any remaining.

Colonel FOOTE. There is one item Major Hughes went out to get a moment ago. We have a paper here on information on the contractor's bid breakdown, to show his allowances for excavation, but it is in percentage form, and we will have to break it down further and submit it later.

Mr. HOLIFIELD. That is fine.

Mr. THOMA. Off the record.

Mr. HOLIFIELD. On the record. The chairman will state that he had a conference with Judge Lanham before he had to leave for his plane this morning, and we agreed on the essentials of the statement which I am about to make.

Sometime in the spring of 1951 we were furnished the information which caused our interest in these particular contracts. Mr. DeMaras and his associates arrived in Anchorage on July 15, 1951, and contacted the Army engineers on July 23, 1951. Subsequent to that, in September 1951, a fair cost estimate was submitted to the General Accounting Office by Mr. Boyer, which showed a sum of $111,000, aproximately, which was due the Government for deficiencies in the contract. On November 15, Colonel Seeman in a letter changed the amount to $101,000. On July 28, 1952, in a letter from General Hardin, the sum was again revised to $60,000. On September 8, 1952, during these hearings, the sum was again revised to $10,000, making four revisions of the fair cost estimate on these contracts. On August 25 of this year, we sent Mr. Thoma and Mr. Clogston here for a preliminary review of the new figures, in order that the subcommittee might have the benefit of the additional knowledge upon its arrival. I understand that request was made for certain material, which in my opinion obligated the Corps of Engineers to provide this last figure of approximately $10,000 to these men who were here in advance of and representing the committee. I understand, further, that that figure was available sometime in June. It seems to me that the Army Corps of Engineers are subject to criticism, No. 1, in not furnishing this final revision to the General Accounting Office, and also, No. 2, in not furnishing to Mr. Thoma and Mr. Clogston the revised figure of $10,000 when they arrived. If these figures had been revised to the General Accounting Office, it might have been possible that this subcommittee would not have made the trip. The subcommittee will make an evaluation of this matter at some later date, and will not pass judgment at this time upon the matter in its entirety.

I might say, however, that the subcommittee appreciates the cooperation of the Engineers since the subcommittee's arrival, and that we were pleased to see that these deficiencies in the main had been corrected on contracts DA–48 and DA–61. The subcommittee was also pleased to see that the other two contracts, DA–135 and DA–193, showed a superior quality of workmanship, apparently resulting from

a more efficient supervision by the Army Engineers Corps of the contractor's work.

The subcommittee has purposely held these hearings in executive session in order to obtain frank testimony and to avoid misleading newspaper headlines which might reflect to the discredit of the Corps of Engineers and to the Government's general program of defense.

The chairman has asked for certain information, which he has been assured will be furnished him. He has also asked for a true copy of the transcript when it is finally typed, in duplicate, and the chairman trusts that any changes made in testimony will be made by notation, so that the subcommittee will know where the changes have been made.

Colonel FOOTE. Mr. Chairman, prior to adjournment, I would like at this time to acknowledge your censure on the failure of the district to provide Mr. Thoma and Mr. Clogston with the information on the final adjustment.

Mr. HOLIFIELD. And the failure to furnish the General Accounting Office in Washington with these figures at the time of their determination?

Colonel FOOTE. Yes, sir. I was not aware of their significance, or that they were required. We hope to cooperate with these two gentlemen.

Mr. HOLIFIELD. May I say that the General Accounting Office, as the colonel well knows, is an arm of the Congress, and is subject to request by Congress for checking into matters of this kind. The Congress depends upon the General Accounting Office as its arm of investigation and audit, and therefore any request made by the Congress through the General Accounting Office is in effect a request of the Congress itself.

Colonel FOOTE. I can asssure you on that, sir, that our omissions in this regard were not deliberate or intentional on my part, and I believe I can speak also for the members of my organization.

I would like to express my personal appreciation, and on behalf of the members of the Alaska district their appreciation, to the chairman and the subcommittee for the businesslike, impartial, and objective manner in which the subcommittee has gone about its business of investigation. It has been as much of a pleasure as it could possibly be under the circumstances.

Mr. HOLIFIELD. Thank you.

Lieutenant General KEPNER. I won't make a speech, but I would like to endorse Colonel Foote's statement.

Mr. HOLIFIELD. The meeting will stand adjourned.

(The hearing was adjourned at 11:10 a. m., September 11, 1952.)

APPENDIX

APPENDIX 1

CORRESPONDENCE RE SUBCOMMITTE TRANSCRIPT OF ALASKA HEARINGS

CORPS OF ENGINEERS, UNITED STATES ARMY,
OFFICE OF THE DISTRICT ENGINEER,
ALASKA DISTRICT,
Anchorage, Alaska, October 9, 1952.

Mr. THOMAS A. KENNEDY,
New House Office Building,
Washington 25, D. C.

DEAR SIR: Enclosed is the ribbon copy of the minutes of the hearing of the special subcommittee of the House Committee on Government Operations held September 8, 9, and 11, 1952, at Anchorage and Elmendorf Air Force Base, Alaska, with regard to housing construction at Elmendorf Air Force Base and Fort Richardson, Alaska. This copy is mailed to you as requested by Congressman Holifield.

The minutes were reviewed by Alaska district personnel who gave the testimony. Changes and additions made by them are shown in pencil in the minutes.

Also enclosed is report of investigation No. I–17258 made by the General Accounting Office, with exhibits, which was left with the Alaskan command by the committee.

Sincerely yours,

L. H. FOOTE,
Colonel, Corps of Engineers, District Engineer.

ELMENDORF AIR FORCE BASE, ALASKA,
September 23, 1952.

I hereby certify that the foregoing record, comprising 263 pages, is a true and accurate transcript of my shorthand notes taken at the hearings of the special subcommittee of the House Committee on Government Operations, held at Anchorage and at Elmendorf Air Force Base, Alaska, on September 8, 9, and 11, 1952.

ELSA O. JONES,
Shorthand Reporter, Office of the Staff Judge Advocate, United States Air Force.

TERRITORY OF ALASKA,
Third Judicial Division, ss:

This certifies that on the 23d day of September 1952, personally appeared before me, the undersigned, a notary public in and for the Territory of Alaska, residing in the said division, the within-named Elsa O. Jones, personally known to me to be the identical individual described in, and who executed the foregoing instrument, and acknowledged to me that she executed the same freely and voluntarily, for the uses and purposes therein mentioned.

Witness my hand and official seal the day and year in this certificate first above written.

[SEAL]

Miss MINNIE J. VITO,
Notary Public for Alaska.

My commission expires June 12, 1956.

APPENDIX 2

Résumé—Family housing—Fort Richardson, Ladd and Eielson

Description of work	Contract No.	Directive		Contract award	Construction started	Beneficial occupancy	Final completion	Contract price	Remarks
		Design	Construction						
51 8-family quarters, Fort Richardson.	(A) 48	Eielson. Nov. 28, 1949 Mar. 9, 1950	May 9, 1950	May 11, 1950	May 21, 1950	June–August 1951.	April 1952	$5,001,732	
Utilities for 51 8-family quarters.	(A) 83	Feb. 3, 1950 Feb. 2, 1950	Aug. 16, 1950	Aug. 15, 1950	Aug. 24, 1950	June–July 1951.	October 1952.[1]	3,394,493	Extension of existing utilities adequate to handle.
33 8-family quarters, Fort Richardson.	(A) 61	Mar. 9, 1950	June 10, 1950	June 30, 1950	July 13, 1950	September–October 1951.	November 1951.	3,226,651	
Utilities for 33 8-family quarters.	(A) 83	Mar. 9, 1950	Aug. 16, 1950	Aug. 15, 1950	Aug. 24, 1950	September 1951.	October 1952.[1]		Do.
38 8-family quarters, Fort Richardson.	(A) 135	Sept. 22, 1950	Jan. 5, 1951	Jan. 4, 1951	Apr. 9, 1951	August–September 1952.	do[1]	4,042,329	
Utilities for 38 8-family quarters.	(A) 236	May 18, 1950	Mar. 17, 1951	June 29, 1951	July 21, 1951	August 1952	December 1952.[1]	7,340,000	A part of major expansion of basic utilities for entire post, including new heat and power plant.
23 8-family quarters, Fort Richardson.	(A) 193	Nov. 28, 1950	Feb. 5, 1951	May 26, 1951	May 25, 1951	September 1952.	October 1952.[1]	2,691,000	
Utilities for 23 8-family quarters.	(A) 236	Nov. 28, 1950	Mar. 14, 1951	June 29, 1951	July 21, 1951	do	December 1952.[1]	7,340,000	Do.
14 8-family quarters, Eielson.	(AF) 51	Mar. 21, 1950	June 28, 1950	June 26, 1950	July 20, 1950	November 1951.	November 1951.	2,152,448	
Utilities to serve 14 8-family quarters.	(AF) 96	Mar. 3, 1950	Sept. 27, 1950	Oct. 18, 1950	Oct. 19, 1950	do	June 1952	529,413	Utilities extended from existing line to accommodate housing.
41 8-family quarters, Eielson.	(A) 160	Sept. 26, 1950	Feb. 6, 1951	Feb. 23, 1951	May 1, 1951	August 1952	October 1952.[1]	4,883,023	
Utilities for 41 8-family quarters.	(AF&A) 248	Nov. 27, 1950 May 17, 1950 Nov. 27, 1950	Feb. 5, 1951 May 14, 1951 Feb. 5, 1951	Apr. 27, 1951 July 28, 1951	Mar. 1, 1951 Aug. 13, 1951	October 1952	June 1953[1]	6,020,410	Army housing in Air Force housing area to be served by Air Force utility for which Air Force funds required. Air Force utilities composed revision of base system in accord master plan plus a new heat and power plant.

35 8-family quarters, Ladd	(A) 188	Sept. 26, 1950 Nov. 27, 1950	Feb. 10, 1951 Feb. 14, 1951	Feb. 23, 1951 Apr. 27, 1951	May 1, 1951 Mar. 1, 1951	July 1952	October 1952.[1]	4,558,180	
Utilities for 35 8-family quarters.	(AF&A) 260	Sept. 15, 1950 Mar. 12, 1951	May 14, 1951 Sept. 28, 1951	Sept. 11, 1951	Sept. 24, 1951	September 1952.	June 1953 [1]	8,493,313	Same as for Eielson, 41 8-family quarters. Applies for Ladd.
42 8-family quarters, Ladd	(AF) 196	Nov. 21, 1950	Feb. 2, 1951	Apr. 28, 1951	June 14, 1951	do	October 1952.[1]	5,513,000	
Utilities for 42 8-family quarters.	(AF&A) 260	Nov. 24, 1950 Nov. 21, 1950	Feb. 21, 1951 June 25, 1951	Sept. 11, 1951	Sept. 24, 1951	do	June 1953 [1]	8,493,313	Part of Air Force new utility system on west side of runway back to heat plant expansion of which also in design.

[1] Estimated.

NOTE.—Future housing at Ladd and Eielson should not present the extension problem of utilities, since basic system is now or shortly will be constructed. Utilities for future housing will mean tying into or short extension of basic system. Lead time required will depend on availability of pipe and fittings. Source of heat and power always subject to study.

APPENDIX 3

SEPTEMBER 8, 1952.

UNIT COSTS OF HOUSING CONSTRUCTED IN ALASKA

DEFINITIONS

Gross area

The gross areas in the attached tabulation were computed as follows:

1. All floor area (including all openings in construction floor slabs) measured to the outer surfaces of the outside or enclosing walls of all—
   (*a*) Floors, including basements.
   (*b*) Usable attics (finished).
   (*c*) Service and equipment rooms.
   (*d*) Penthouses.
   (*e*) Enclosed passages and walks.
2. One-half area of all—
   (*a*) Porticos.
   (*b*) Covered open porches.
   (*c*) Covered platforms.

Net area

The net areas in the attached tabulation were computed as follows:

1. *Barracks and dormitories.*—(*a*) All floor areas measured from inside walls of living quarters, recreational areas (day rooms), kitchen (food preparation and storage) and mess halls but excluding space required for hallways, stairs, toilet facilities, porches, terraces, storage and laundry facilities.

2. *Bachelor officers quarters.*—(*a*) All floor areas measured from inside walls of living quarters, closets, baths, linen and bedding storage, storage (personal effects), and laundry facilities but excluding space required for vestibules, halls, stairs, and necessary service facilities appurtenant to the operation of the building.

3. *Family housing.*—(*a*) All floor areas measured from inside of exterior walls, excluding basement, attic, garage, and porches.

Item of construction	Gross area per building/man-family	Net area per building/man-family	Cost of building	Cost per square foot [1]		Capacity of building	Cost per unit	Date bid opening	Remarks
				Gross area	Net area				
	Square feet	*Square feet*				*Men*	*Man-family*		
Dormitories, airmen:									
198-man dormitory (Elmendorf)	30,075/152	17,474/88	$595,383	$19.38	$34.10	198	$3,010	July 8, 1952	Includes cost of outside utilities to serve building.
500-man dormitory									No 500-man dormitories have been constructed by Air Force.
750-man dormitory (Elmendorf)	144,892/193	79,083/105	2,068,000	14.27	26.15	750	2,757	Aug. 21, 1951	
Barracks, enlisted men:									
200-man barracks (Fort Richardson)	42,670/213	22,238/111	504,566	11.82	22.69	200	2,523	June 15, 1950	
500-man barracks (Fort Richardson)	105,496/211	56,686/113	1,201,461	11.39	21.20	500	2,403	do	
750-man barracks									No 750-man barracks have been constructed by Army.
Quarters, bachelor officer (Eielson Air Force Base):									
General, colonel, and lieutenant colonel (20 men per bachelor officers quarters).	15,913/796	10,474/524	219,500	13.79	20.96	20	10,975	Aug. 15, 1952	Space allotment based on officer being assigned 1 bedroom with closet, 1 living room with closet, and 1 bathroom.
Major and captain (30 men per bachelor officers quarters).	15,913/530	10,474/349	219,500	13.79	20.96	30	7,317	do	Space allotment based on officer being assigned 1 bedroom with closet, ½ living room with ½ closet, and ¾ bathroom.
Lieutenant and warrant officer (40 men per bachelor officers quarters).	15,913/398	10,474/262	219,500	13.79	20.96	40	5,488	do	Space allotment based on officer being assigned 1 bedroom with closet and ½ bathroom.
Family housing (8) officers (Eielson Air Force Base):						*Families*			
1-bedroom units	9,507/1,188	6,080/760	125,207	13.17	20.76	8	$15,650	July 29, 1952	Due to the recent date of contract award, the cost data for individual types of units are not presently available. Costs shown have been prorated from the square footages of the units. The total cost of utilities for the 128 family units under this contract is $381,129 for an average cost per family unit of $2,977 or approximately 14.6 percent of the average cost of the family housing.
2-bedroom units	12,776/1,597	7,856/982	168,260	13.17	20.76	8	21,030	do	
3-bedroom units	15,124/1,890	9,632/1,204	199,183	13.17	20.76	8	24,900	do	
Family housing (8) airmen (Eielson Air Force Base):									
1-bedroom units	8,935/1,116	5,712/714	117,674	13.17	20.76	8	14,710	do	
2-bedroom units	12,104/1,513	7,648/956	159,410	13.17	20.76	8	19,925	do	
3-bedroom units [2]	13,881/1,735	8,576/1,072	182,813	(1)	(1)		22,850		

[1] Not a bid item.
[2] Building cost and cost per family based on cost per square foot of above units.

APPENDIX 4

HISTORY OF WORK PERFORMED BY THE FIRM OF FOSS & MALCOLM, LATTERLY FOSS, MALCOLM & OLSEN, AND NOW FOSS & OLSEN, OF JUNEAU, ALASKA, ON ARCHITECT-ENGINEER HOUSING CONTRACTS FOR THE ALASKA DISTRICT

Contract DA–95–507–eng–23—Executed January 24, 1950

This is their original contract which, together with its modifications, covers the original design of a one row-type house consisting of eight-family units, 1,080 square feet each (NCO type), and containing three bedrooms; also one row-type house consisting of eight units, 990 square feet per unit (NCO type), containing two bedrooms, together with all appurtenances thereto. The original estimated cost of one each of the three-bedroom row houses was $226,000, and the orignal estimated cost of one each of the eight-row two-bedroom houses was $210,000, or a total estimated construction cost for the two of $436,000. The fee for this work as it was negotiated and contained in the contract as finally consummated, totaled $12,675.

These housing plans and specifications for same were designed with the purpose of being used as a standard plan for all houses, Army and Air Force, to be built in Alaska for the square-foot areas involved, and the specification on bedroom involved. They have so been used at Eielson, Ladd, and Elmendorf Air Force Bases, and Fort Richardson. At Fort Richardson alone, 145 eight-family row-house units have been built, making a total of 1,160 individual family units, and at a total construction cost estimated to be more than $15,000,000. The total architect-engineer fee remained, however, at $12,675.

Contract DA–95–507–eng–143—Executed January 9, 1951

This contract, together with its modifications, covers the following design work: One company officer eight-row house unit, 1,250 square feet per unit, with three bedrooms per family unit; one field officer's duplex house, 1,400 square feet per unit; one colonel's family house, single dwelling, 1,670 square feet; and an advanced preliminary design of one general's family quarters of 2,100 square feet. Also: One-bedroom (officers') eight-family row house, each unit approximately 750 square feet; one-bedroom (airmen's) eight-family quarters, each unit approximately 705 square feet; and changes to the original eight-family two-bedroom (officers') quarters, each unit approximately 990 square feet; and one two-bedroom (airmen's) eight-family quarters, approximately 924 square feet per unit. After completion of design, extensive changes to drawings were required, which constituted new work under this contract, such as revision of heating plan to provide hot-water system in lieu of steam system originally desired, revision of plumbing and electrical lay-outs as affected by these changes, and the same changes to be incorporated into completed plans for the 1,080-square-foot three-bedroom NCO units. All for a total price of $21,089.85, and for a total estimated construction cost for one unit each of the above of $1,120,547.

The foregoing design again was to serve as a standard for all quarters built for officers and airmen at all Army and Air Force bases in Alaska and, regardless of the number built, only one fee was involved, which fee totaled $21,089.85. Projects under construction or under bid, using this new design for eight-row house, also total in excess of $15,000,000. However, the architect-engineer fee for design of this type house remains at $21,089.85.

Contract DA–95–507–eng–169—executed March 9, 1951

This contract covers design of family housing at Whittier, Alaska, at which point a very special condition exists, in that there is extreme snowfall during the winter period. Snow loads on roofs are extremely heavy. For this reason a concrete-block structure, reinforced by a concrete frame and with concrete roof structure was used. The units consisted of 12 apartments per building, three-story walk-up type, with full basement additional, and allowing for 1,080 square feet per unit for NCO quarters. A similar structure for 12-family units, having an individual family unit area of 1,250 square feet, was also designed, and a 6-family apartment, units having 1,470 square feet per family, was also designed. In addition, there was a colonel's quarters designed for this severe climatic condition, having a total area of 1,670 square feet. The total cost of this work for architect-engineer services under this contract was $23,300. The estimated construction cost for one each individual type apartment totals $950,000. It is estimated that a total of all varieties of quarters for this design or similar design will be required for the Whittier area, and will represent an estimated construction cost for housing, using this design, of $3,500,000.

APPENDIX 5

CORRESPONDENCE BETWEEN HON. CHET HOLIFIELD AND DISTRICT ENGINEER, ALASKA

CORPS OF ENGINEERS, UNITED STATES ARMY,
OFFICE OF THE DISTRICT ENGINEER, ALASKA DISTRICT,
Anchorage, Alaska, October 7, 1952.

The Honorable CHET HOLIFIELD,
Chairman, Subcommittee of the House Committee on Government Operations,
House of Representatives, Washington, D. C.

DEAR SIR: This will acknowledge receipt of your letter of October 3, 1952, in reference to subcommittee hearings on contract DA–95–507–eng–48.

The cost breakdown requested in your last paragraph will require a few days to compile, since all correspondence has been returned to the central files. This will be forwarded to you in the next few days.

With reference to including the plumbing change in modification No. 10, it is accepted practice to show the description of the technical change only in modifications together with the total price change, if any. The modification is supported by a finding of fact and relevant correspondence including costs breakdown. Since this change was initiated by a shop drawing, which was approved at no change in price, it was the decision of this office to show the change on as-built drawings, thus requiring no modification to the contract. Supporting documents in the contract file show the cost breakdown to substantiate the findings of no change in contract price.

You are assured that this office desires to cooperate with the subcommittee in every possible way and that the information requested will be promptly forwarded to you.

Very truly yours,

L. H. FOOTE,
Colonel, Corps of Engineers, District Engineer.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D. C., October 3, 1952.

L. H. FOOTE,
Colonel, Corps of Engineers, United States Army, District Engineer,
Alaska District Office, Corps of Engineers, United States Army,
Anchorage, Alaska.

MY DEAR COLONEL FOOTE: A preliminary examination has been made of the documents submitted to the subcommittee by your office. We note that modification No. 10 to contract No. DA–95–507–eng–48, dated June 13, 1951, which reportedly covers the credits due the Government for deficiencies and work not required to be corrected or performed by Patti-MacDonald Construction Co., does not contain any reference to one of the major changes on this contract, namely, deletions in the plumbing system.

At the hearings held by the subcommittee, we were informed by members of your staff that your predecessor, Colonel Seeman, had not given consideration to certain allowances that should have been granted to the contractor in computing the estimated credit due the Government for this change. The allowances were purportedly to cover such items as the additional costs incurred by the contractor in excavating trenches in which to lay underground soil and waste pipes, the contractor's ability to purchase materials at an average of 25 percent lower than wholesale cost, and the difference between labor costs used by Colonel Seeman as taken from the fair-cost estimates for this contract and the actual labor costs for similar construction on other contracts. We feel that this credit and the allowances granted to the contractor as an offset should have been reflected in modification No. 10 so that the record would be complete.

In order that a full understanding of the action taken by the Alaska district office on the matters in question may be had by the subcommittee, it is necessary that the subcommittee be furnished with detailed analyses of the material, freight, and labor costs of all increases or decreases in the contract price. We will

appreciate your submitting this information as promptly as possible in columnar form to the extent practicable, and in triplicate, as follows:

Material:
- Description
- Number of units
- Unit price
- Amount
- Source of price of material and/or catalog reference
- Trade discounts or other discount factors

Freight
- Weight
- Freight rate
- Amount

Labor
- Number of man-hours
- Hourly labor rate
- Amount

Cost
Labor efficiency factor
Overhead and profit factor
Increase or decrease in contract price

Sincerely yours,

CHET HOLIFIELD, M. C.,
Subcommittee Chairman.

APPENDIX 6

GENERAL ACCOUNTING OFFICE REPORT ON ALASKA HOUSING CONSTRUCTION

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington 25, April 24, 1952.

Hon. WILLIAM L. DAWSON,
Chairman, Committee on Expenditures in the Executive Departments,
House of Representatives.

MY DEAR MR. CHAIRMAN: There is attached hereto copy of report of investigation of certain aspects of the housing construction program at Elmendorf Air Force Base and Fort Richardson, Alaska, which was conducted by the General Accounting Office. The report covers four contracts providing for the construction of 145 buildings described as eight-family NCO-type quarters containing 1,160 dwelling units of permanent-type construction.

This investigation was initiated as a result of information furnished in July 1951, by Congressman Chet Holifield of your committee.

Sincerely yours,

FRANK L. YATES,
Acting Comptroller General of the United States.

Report No. I-17258

REPORT OF INVESTIGATION BY GENERAL ACCOUNTING OFFICE, OFFICE OF INVESTIGATIONS, OF HOUSING CONSTRUCTION, ELMENDORF AIR FORCE BASE AND FORT RICHARDSON, ALASKA OFFICE OF THE DISTRICT ENGINEER, ALASKA DISTRICT CORPS OF ENGINEERS, DEPARTMENT OF THE ARMY, ANCHORAGE, ALASKA

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(NOTE. Documents and exhibits referred to held in subcommittee files.)

SUMMARY OF REPORT

During the period from July 18 to September 28, 1951, limited investigation was made of housing construction under four contracts at Elmendorf Air Force Base and Fort Richardson, Alaska. These contracts, briefly identified as Nos.

DA–48, DA–61, DA–135, and DA–193, covered the construction of 145 eight-family quarters containing 1,160 dwelling units. These buildings were designated in the design authorizations to be of permanent-type construction.

Prior to April 1951 the number and type of deficiencies reported by civilian inspectors of United States Army engineers seemed normal for the type of buildings under construction. During the early part of April 1951 serious deficiencies and deviations from contract plans and specifications in the plumbing and heating installations on contract No. DA–48 were reported by Donald F. Gordon, who had been hired as a mechanical inspector on or about April 5, 1951. These deficiencies and deviations upon being brought to the attention of the United States Army engineers district office, Anchorage, Alaska, were investigated by that office during the latter part of April and most of the month of May 1951; however, only limited action was taken by the district office to obtain correction or adjustment by the contractor, and as of the date this investigation was initiated, July 18, 1951, most of the more serious deficiencies and deviations were still in existence.

Most of the deviations from contract plans and specifications involved substitutions, omissions, and deletions in the plumbing and heating installations with resultant savings in material, labor, and freight. These deviations were accomplished by means of contractor's shop drawings which were approved by the district office prior to initiation of the work. Most deviations were common to all four contracts; however, they were made to a lesser extent on contracts Nos. DA–61, DA–135, and DA–193 than on contract No. DA–48, which by far contained the most serious deviations and deficiencies. The contractors' shop drawings for contracts Nos. DA–48 and DA–61 were approved by the district office in September 1950. The shop drawings for contract No. DA–135 were finally approved by the district office on June 8, 1951, and although shop drawings for contract No. DA–193 were not submitted for approval, the plumbing and heating installations for this contract more or less follow the same pattern as those for contract No. DA–135 as both of these contracts were awarded Patti-MacDonald.

Normal Government contracting procedure ordinarily requires that deviations from contract plans and specifications, particularly those resulting in savings in costs to the contractor, be formalized by adjusting the lump-sum contract price so that the Government obtains the benefit of those savings; however, as of September 28, 1951, the date this investigation was completed, no final adjustment had been effected. Furthermore, although the district office had been aware of these deviations on contract No. DA–48 since at least April 1951, the district office records as of July 18, 1951, the date this investigation was initiated, disclosed that only ineffectual action was taken and that the contractor's (Patti-MacDonald) explanation that the plumbing and heating system was installed in accordance with his approved shop drawings was acceptable to the district office. According to the records, no action of any kind was taken by the district office on the deviations from plans and specifications for contracts Nos. DA–61, DA–135, and DA–193 as of July 18, 1951.

During the latter part of July and the month of August 1951, General Accounting Office representatives at various times accompanied the zone engineer, area engineer, inspectors, and other representatives of the district office on physical inspections of the buildings in various stages of construction under these four contracts, and these inspections not only confirmed the fact that the plumbing and heating installations deviated considerably from the contract plans and specifications, but also disclosed that many of the other more serious deficiencies on contract No. DA–48 had not been corrected, including some deficiencies on which the contractor had promised corrective action. This was acknowledged by United States Army engineers' personnel.

This entire matter was brought to the attention of the district engineer and discussed informally on September 7, 1951, and he was requested to have an inspection made to determine the current status of the deficiencies and deviations. This inspection was made by district office representatives on September 11, 1951, in the presence of General Accounting Office representatives, and substantiated the findings of the inspections made during the latter part of July and the month of August 1951.

General Accounting Office representatives, by memorandum dated September 18, 1951, formally brought the attention of the district engineer to the deficiencies and deviations from contract plans and specifications with the request that he furnish information as to his views and the action he intended to take on these matters. This memorandum was answered by the district engineer by letter

dated November 15, 1951, indicating that he was taking the necessary action to correct these unsatisfactory conditions. He stated that supplementing the inspection of September 11, 1951, continued inspections of the buildings constructed under contract No. DA–48 were made by a district team of five members and that their findings served as the basis for a discussion held on October 12, 1951, with the contractor. As a result of these discussions the contractor was being required to take the following courses of action:

(1) Where the deficiencies and deviations are fundamentally sound and will result in no serious functional weaknesses, the Government will receive credit for the savings in costs.

(2) Where the deficiencies and deviations produced unsatisfactory work, the materials and work will be torn out and replaced so that it conforms to the contract plans and specifications.

In a letter dated October 29, 1951, the district engineer notified Patti-MacDonald as to this understanding and outlined in detail the action that would be required to correct the deficiencies and deviations.

In his letter of November 15, 1951, the district engineer stated that on items which the contractor was not being required to correct figures had been compiled in order to negotiate with the contractor on the credit due the Government on contract No. DA–48 and that this credit was estimated to amount to $101,055. The district engineer's letter indicated that similar action would be taken on contracts Nos. DA–61, DA–135, and DA–193; however, the dollar value of the deficiencies and deviations on which corrective measures would not be required was not included in this letter.

While the district engineer has determined the estimated dollar value of the savings in material, labor, and freight on the substitutions, omissions, and deletions and has indicated that corrective action is being taken on unsatisfactory work, the question remains as to extent to which deviations from the contract plans and specifications affected the architectural design and structural life of these permanent-type quarters; also, whether the changes will result in increased maintenance costs and early replacements.

Specific subjects covered in this report are presented in summary form as follows:

Substitutions, omissions, and deletions in plumbing waste and vent system

The plumbing waste and vent system was not installed in accordance with the plans and specifications made a part of contracts Nos. DA–48, DA–61, DA–135, and DA–193. By means of shop drawings of the plumbing installation many substitutions, omissions, and deletions had been made by the contractors which resulted in considerable savings in material, labor, and freight. Notwithstanding this fact, the contractors' shop drawings were approved by the district office without the execution of change orders adjusting the lump-sum contract prices, and as a result these savings accrued to the benefit of the contractors instead of to the Government. Although many of the discrepancies between the shop drawings and contract plans were brought to the attention of the residency and the district office in inspection reports, the action taken to correct this condition was ineffectual until the matter was brought to the attention of the district engineer during this investigation. In a letter dated November 15, 1951, the district engineer stated that where the substitutions, omissions, and deletions do not affect the functioning of the plumbing system, the savings in cost would be recovered from the contractors; otherwise, replacement would be required, and estimated that the recovery on contract No. DA–48 will amount to $73,644. The savings on contracts Nos. DA–61, DA–135, and DA–193 had not been computed as of November 15, 1951; however, the substitutions, omissions, and deletions on these contracts were not as extensive as those on contract No. DA–48. Comparison of the shop drawings with contract plans and specifications will show that the plumbing waste and vent systems installed or in the process of being installed under contracts Nos. DA–48, DA–61, DA–135, and DA–193 do not conform to the contract plans and specifications. Based on information contained in various publications issued by the National Bureau of Standards, question arises as to (1) whether these waste and vent systems meet the minimum standards recommended by these publications, (2) whether the structural life of the buildings has been impaired, (3) whether these systems will be expensive to maintain, and (4) whether unsanitary conditions will result from these installations.

Installation of radiator valves on convectors

Individual cut-off valves were omitted from all convectors in the eight-family quarters constructed under contracts Nos. DA–48 and DA–61. The contract specifications require the installation of a valve on the "supply to each unit of radiation and convection." Installation of cut-off valves on convectors is desirable not only from the standpoint of having complete control over regulating the heat output from each convector but also as a matter of convenience and necessity in making repairs and replacements. The value of the valves deleted, including material, labor, and freight, is estimated to amount to about $29,000 for contract No. DA–48 and $18,000 for contract No. DA–61. On April 9, 1951, before many convectors had been installed, the resident engineer directed Patti-MacDonald (contract No. DA–48) to install valves on convectors as required by the contract specifications. The contractor contended that cut-off valves on convectors were not required by the contract plans and specifications, and despite repeated directives from the resident engineer and the district office, he continued to install convectors without valves. Effective action was not taken by the district office to enforce its directives until July 24, 1951, and in the meantime most of the buildings had been accepted for useful occupancy and turned over to the post engineer for assignment to military personnel and their dependents. On August 3, 1951, the contractor finally agreed to install valves on convectors, but stated that the work would be performed under protest and with the expectation of being paid for it. Estimates of the cost of installing valves on convectors at this late date range from $60,000 to $110,000 as compared to the original estimated cost of $29,000 had they been installed when this matter was first brought to the attention of the contractor. The contractor filed notice of his intent to claim payment for the full cost of installing these valves, including additional expenses of raising convectors, removing piping, and repainting walls. Boespflug-Birch (contract No. DA–61) installed these valves during August and September 1951, and completed the installation before the buildings were accepted for useful occupancy. Because of the manner in which the connections to the convectors were originally made, these valves were installed with a minimum of additional expense. Boespflug-Birch also filed notice of intent to claim payment for the full cost of installing valves on convectors.

Bathtubs and plumbing fittings

Bathtubs installed in buildings constructed under contracts Nos. DA–48 and DA–61 do not meet contract specifications. The specifications gave the contractors the option of furnishing and installing either cast-iron or formed-metal bathtubs, and, although the former generally cost more than the latter, alternate bids were not required. The Allianceware formed-metal bathtub installed under these contracts is reputed to be the lightest-weight and cheapest bathtub in the plumbing trade. Interior and exterior dimensions of this bathtub do not meet the minimum dimensions of applicable Federal specifications. These bathtubs were considered acceptable by the district office, and no action was taken on this matter until the failure of the bathtubs to meet minimum dimensions of applicable Federal specifications was brought to the attention of the district engineer during this investigation. Negotiations are now under way to recover from the contractors the difference in cost between the formed-metal bathtub installed and one which meets contract specifications. On the basis of information furnished by the district engineer, it is estimated that this recovery will amount to $8,109 on contract No. DA–48 and $5,247 on contract No. DA–61, or a total of $13,356. However, the question arises as to whether this recovery will adequately compensate the Government for the obvious disadvantages resulting from the installation of inferior bathtubs and plumbing fittings.

Substitution of Welchboard for striated plywood

The plans and specifications made a part of all contracts for the construction of eight-family quarters require certain exterior areas of the buildings to be covered with striated plywood, one side of which is scored with lines forming alternating ridges and furrows known as striations. On the basis of allegations of scarcity of supply and delayed deliveries made by two contractors, Patti-MacDonald and Boespflug-Birch, they were permitted to use Welchboard as a substitute for striated plywood on contracts Nos. DA–48 and DA–61 for 51 and 33 buildings, respectively. Welchboard is a plywood having a face of waterproof, resin-fused woodplastic. With approximately 1 year's exposure to the weather, and in some cases even less, serious surface ruptures and cracks have appeared in the Welchboard, and in addition many panels show a tendency to buckle and

curl sufficiently in some instances to draw the nails particularly on the sunny side of the buildings. Investigation disclosed that Welchboard was a cheaper material than striated plywood. Normally, where a contractor is permitted to substitute a cheaper material than that called for in the contract plans and specifications, proper contracting procedure requires the contractor to submit a formal proposal to make the substitution, which upon approval by the district office results in a change order adjusting the lump-sum contract price so that the Government obtains the benefit of any savings in costs arising from the substitution. No change orders for this substitution were executed by the contracting officer (district engineer) with the result that the savings in costs accrued to the benefit of the contractors instead of to the Government. On the basis of information furnished by the district engineer, it is estimated that these savings amounted to $2,805 on contract No. DA–48 and $1,815 on contract No. DA–61, or a total of $4,620.

General deficiencies (contract No. DA–48)

During the first 9 months that construction was in progress on contract No. DA–48, deficiencies reported by inspectors seemed normal for a project of this type and size. As a rule, inspectors' daily reports were of little value in determining the status of construction during this 9-month period. In April 1951 a new inspector, Donald F. Gordon, reported serious deficiencies in the plumbing and heating installation, many of which dated back to the early stages of construction. Most of the deficiencies resulted from substitutions of inferior materials, omission of specified materials, poor workmanship, and other deviations from contract plans and specifications. Although this matter was investigated by the district office, only limited action was taken to correct these deficiencies, and no action at all was taken to recover the amount due the Government representing the value of the work deleted which the contractor was not required to correct. Physical inspections of the buildings made during this investigation confirmed the fact that most of the more serious deficiencies still existed, although some corrections had been made by the contractor. When this matter was brought to the attention of the district engineer, he had an inspection made by a district team of five members, which disclosed many other deficiencies in addition to those in the plumbing and heating installation. In a letter dated November 15, 1951, the district engineer indicated that the contractor was proceeding with the work of correcting many of these deficiencies, and that negotiations were under way to recover from the contractor an amount estimated at $101,055, representing savings in costs of material, labor, and freight resulting from substitutions, omissions, deletions, and other deviations from contract plans and specifications which the contractor was not being required to correct. Included in the amount of $101,055 are estimated recoveries of $2,805 for the substitution of Welchboard for striated plywood, $8,109 for bathtubs, and $73,644 for substitutions, omissions, and deletions in the plumbing waste and vent system.

INTRODUCTION

The following report of investigation of housing construction under four contracts covers substitutions, omissions, and deletions in plumbing waste and vent system, installation of radiator valves on convectors, bathtubs, and plumbing fittings, the substitution of Welchboard for striated plywood, and general deficiencies:

The subject contracts identified as Nos. DA–95–507–eng–48, DA–95–507–eng–61, DA–95–507–eng–135, and DA–95–507–eng–193 cover the construction of 145 buildings containing 1,160 NCO-type family quarters at Fort Richardson, Alaska.

The Alaska district of the Corps of Engineers comprises the entire Territory of Alaska, which has an area of 586,400 square miles, or more than twice that of the State of Texas. The district office has the responsibility of planning, designing, directing, and supervising engineering and construction work in Alaska for the Army and Air Force, as well as providing certain services in the acquisition, disposal, appraisal, and management of real estate. Although the military construction program by far constitutes the major workload of the district office, it also administers such civil-works projects as channel dredging and flood control in the Fairbanks, Nome, and Petersburg areas.

The office of the district engineer, Alaska district, is under the command of L. E. Seeman, colonel, Corps of Engineers, United States Army, district engineer, who is assisted by G. M. Dorland, lieutenant colonel, Corps of Engineers, United States Army, assistant district engineer, and J. W. Chapman, lieutenant colonel, Corps of Engineers, United States Army, executive officer. In addition to the

district office, which is located on Elmendorf Air Force Base near Anchorage, Alaska, a branch office is maintained at Seattle, Wash. The branch office is concerned primarily with design work and is generally referred to as the design branch.

The management report for the month of June 1951 showed that personnel of the district office consisted of 26 officers and 1,079 civilians. Of the civilians, 1,028 were assigned to military works and 51 to civil works.

Field inspections of construction work in progress in the Elmendorf-Fort Richardson area are made under the supervision of James W. Huston, resident engineer, a civilian employee of the United States Engineers. These field inspections are designed to determine whether the materials and workmanship comply with or are equivalent to the requirement of the contract, plans, and specifications.

Statistical information covering the construction program as a whole, housing construction contracts, and contract payments is included in exhibits Nos. E–14, E–15, and E–16.

SCOPE OF INVESTIGATION

Investigation of the construction program administered by the office of the district engineer, Alaska district, was limited to contracts covering construction of eight-family quarters in the Fort Richardson area.

Invitations to bid, plans, specifications and addenda, abstracts of bids, contracts, subsequent modifications by approved change orders, and contractors' shop drawings were examined. Official records of the district engineer, resident engineer, zone engineers, and area engineers relative to administration of the contracts were reviewed. The Government's fair cost estimates prepared by the district office, detailed lists of material and equipment proposed to be furnished as submitted by contractors, punch lists, and written periodic reports of inspectors covering work deficiencies and contract deviations were also examined. Representatives of several major suppliers of construction materials and equipment substituted in the work were interviewed. Physical inspection of work in progress under the following contracts was made during the various stages of construction:

Contract No. DA–95–507–eng–48 (hereafter referred to as DA–48), dated May 11, 1950, entered into with S. Patti Construction Co. and MacDonald Construction Co., a joint venture (hereafter referred to as Patti-MacDonald), 1340 Admiral Boulevard, Kansas City, Mo., for the construction of 51 buildings consisting of 408 units at an original lump-sum price of $4,812,503, subsequently modified and lump-sum price adjusted to $5,001,732.74 as of February 16, 1951.

Contract No. DA–95–507–eng–61 (hereafter referred to as DA–61), dated June 30, 1950, entered into with J. C. Boespflug Construction Co. and S. Birch & Sons Construction Co., a joint venture (hereafter referred to as Boespflug-Birch), 1912 Fourth Avenue South, Seattle 4, Wash., for the construction of 33 buildings consisting of 264 units at an original lump-sum price of $3,175,500, subsequently modified and lump-sum price adjusted to $3,226,651.61 as of May 25, 1951.

Contract No. DA–95–507–eng–135 (hereafter referred to as DA–135), dated January 4, 1951, entered into with Patti-MacDonald for the construction of 38 buildings consisting of 304 units at an original lump-sum price of $4,042,329 (no adjustments of lump-sum price as of September 15, 1951).

Contract No. DA–95–507–eng–193 (hereafter referred to as DA–193), dated May 26, 1951, entered into with Patti-MacDonald for the construction of 23 buildings consisting of 184 units at an original lump-sum price of $2,709,400, subsequently modified and lump-sum price adjusted to $2,691,000 as of June 14, 1951.

SUBSTITUTIONS, OMISSIONS, AND DELETIONS IN PLUMBING WASTE AND VENT SYSTEM

The plumbing waste and vent system in the eight-family quarters was not installed in accordance with the plans and specifications made a part of contracts Nos. DA–48, DA–61, DA–135, and DA–193. The basement mechanical plans and details of the applicable contract drawings contain a typical plumbing diagram showing the manner in which water closets, lavatories, bathtubs, kitchen sinks, laundry trays, and basement floor drains were to be wasted and vented. Officials and representatives of the district office and the resident engineer's office, including graduate engineers, mechanical inspectors, and others with practical experience as journeymen and master plumbers, expressed a general

opinion that the plumbing installation shown in the contract drawings was a good workable system that could be installed with no more than a few minor installation changes generally considered normal for this type of construction. The consensus of their expressions was that the plumbing diagram was clearly drawn, and that installation of the waste and vent system in accordance with this diagram did not present any particular difficulties or problems in construction.

As required by the specifications, shop drawings of the plumbing installation were submitted by the contractors to the district office for approval. These shop drawings show in considerably more detail than the contract drawings how the contractors intended to proceed with the work. A comparison of the shop drawings to the contract drawings will clearly indicate that many substitutions, omissions, and deletions were made by the contractors which resulted in considerable savings in material, labor, and freight. Officials of the district office stated that the waste and vent systems as installed by the contractors would function, but were of the opinion that the waste and vent systems were inferior as to quality of materials and workmanship and would not function as well as the waste and vent systems called for by the contract plans and specifications.

According to an estimate prepared by the estimates section of the district office on November 3, 1951, the waste and vent system installed by Patti-MacDonald's plumbing subcontractor, C. A. Hooper Co., Madison, Wis., on contract No. DA–48 cost $73,644 less than the one called for by the contract plans and specifications. Cost figures are not available for contracts Nos. DA–61, DA–135, and DA–193, and although substitutions, omissions, and deletions on the waste and vent systems under these contracts were not made to the same extent that they were on contract No. DA–48, unquestionably considerable savings in cost were also made under these contracts. As of September 28, 1951, the records of the district office did not disclose that any change orders to contracts Nos. DA–48, DA–61, DA–135, and DA–193 were authorized and approved by the contracting officer amending the lump-sum contract prices so that the savings in cost resulting from the substitutions, omissions, and deletions in the waste and vent systems would be credited to the Government instead of accruing to the benefit of the contractors. Some illustrations of the substitutions, omissions, and deletions made by the contractors follow:

According to the contract drawings a 4-inch waste pipe was to be installed along the basement wall to carry off the waste from the bathroom fixtures (water closet, lavatory, and bathtub) and kitchen sink. The waste from the laundry trays and floor drains in the basement was to be carried off separately by a waste pipe laid under the basement floor slabs, and this waste pipe was to be of two sizes, 40 feet of 2-inch waste pipe at each end of the building and 40 feet of 2½-inch waste pipe at the center of the building. Both the 4-inch and 2- and 2½-inch waste pipes were to extend a total distance of about 120 feet parallel to the rear wall starting at each end of the building and picking up the waste from the plumbing fixtures before joining the connection with the outside sewer pipe near the center of the buiding. In the shop drawings the contractors relocated the 4-inch waste pipe under the basement floor slabs and connected the waste outlets of the laundry trays and floor drains direct to the 4-inch waste pipe, thus deleting all 2- and 2½-inch waste pipe under the basement floor slabs as well as numerous fittings that would have been required for the installation of this pipe. As contracts Nos. DA–48, DA61, DA–135, and DA–193 provide for the construction of 145 buildings in all, approximately 17,400 linear feet of 2- and 2½-inch waste pipe were deleted.

As shown by the contract drawings laundry trays were to be installed in pairs to back on opposite sides of the basement party walls separating each dwelling unit. Laundry trays in each unit were to be individually vented with a 1½-vent pipe rising vertically a distance of about 6 feet to the first-floor joists where they were to be joined together into a common 1½-inch vent pipe connected to the main soil stack at the same point as the bathroom lavatory. In the shop drawings the contractors deleted one individual vent (approximately 6 feet of 1½-inch vent pipe) in every two-unit laundry tray installation by connecting both waste outlets to a comon 1½-inch vent pipe. Approximately 24 linear feet of 1½-inch vent pipe in each building, or a total of 3,480 linear feet for 145 buildings, were deleted.

Contract specifications require that changes in direction of waste piping be made with one-eight and one-sixteenth bends and that clean-outs be installed at all changes in direction exceeding 45 degrees. Inspection of the buildings

disclosed that the contractors omitted the required clean-outs at many changes in direction of 90 degrees.

Contract specifications provide that clean-out Y's be installed at the base of each vertical waste or soil pipe. Inspection of the buildings disclosed that the contractors substituted test T's, also referred to as clean-out T's, for clean-out Y's. Test or clean-out T's do not function as well as clean-out Y's nor do they cost as much.

More detailed information covering substitutions, omissions, deletions in the plumbing waste and vent system installed under each contract follows:

Contract No. DA–48

In accordance with specifications,[1] shop drawings of the plumbing installation for contract No. DA–48 were prepared by C. A. Hooper Co., Madison, Wis., plumbing and heating subcontractor for Patti-MacDonald. By memorandum dated July 12, 1950,[2] the resident engineer submitted these drawings to the district office and stated that the contractor proposed changes in plumbing in accordance with the drawings. On September 20, 1950, the district office notified Patti-MacDonald that the shop drawings were approved.[3]

The shop drawings contain many changes involving substitutions, omissions, and deletions in the plumbing waste and vent system with resulting savings in material, labor, and freight. However, as of September 28, 1951, the district office had not issued a change order amending the lump-sum contract price so that these savings would accrue to the Government, which is a normal requirement in Government contracting.

Review of inspector's daily reports disclosed that during the earlier stages of construction and until April 1951 only one deficiency in the waste and vent systems was reported. In his daily report for October 2, 1950, W. L. Weakley, mechanical inspector of plumbing on contract No. DA–48, stated that waste drains were installed on bathtubs without vents.

By report dated April 12, 1951,[4] Donald F. Gordon, who had been assigned as mechanical inspector of plumbing and heating on contract No. DA–48 sometime during the early part of April 1951, called to attention the existence of serious deficiencies in the waste and vent system.

This inspector (Gordon) again commented on these deficiencies in the waste and vent system in a report dated April 14, 1951,[5] the pertinent parts of which are quoted as follows:

> "The waste and vent system that has been and is still being installed in these housing units is substandard in lay-out and installation.
>
> * * * * *
>
> "In every apartment the bathtub trap water seal is completely unprotected by the usual column of air (vent) and this water seal would be sucked out by combined usage of the adjacent plumbing fixtures which are themselves not wasted and vented in an approved manner. The bath trap without this water seal becomes then but another conductor for the sewer gases which frequently come from the street utilities, for there is nothing to obstruct these gases.
>
> * * * * *
>
> "No provision is made for clean-out of bathtub drainage arm. Its method of installation insures that this will have to be done frequently, which will necessitate cutting of the ceiling at the first instance of a plug-up.
>
> "It is not possible, within a few days, to catalog all of the defective materials being used and substandard practices being engaged in on this mechanical installation, but it is quite proper for this inspector to say that nearly every phase of the work is featured by disproven, unsanitary, slipshod methods and defective, substandard materials.
>
> "The contractor is saving approximately $150 per apartment in labor and materials with the work he is now performing, but he is leaving the Government with a plumbing and heating installation that is substandard and is not permitted elsewhere. * * *"

A formal mechanical inspection report, dated April 19–20, was prepared and signed by Donald F. Gordon, John J. Loughlin, John H. Coleman, captains, Corps of Engineers, United States Army.[6] Among other things, certain deficiencies in

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[1] Appendix A (par. SC–16, shop drawings, pt. III, special conditions of specifications No. 595–507–50–9 made a part of contract No. DA–48).
[2] Exhibit No. D–1.
[3] Exhibit No. D–2.
[4] Exhibit No. E–10.
[5] Exhibit No. E–3, sheets 6 to 11, inclusive.
[6] Exhibit No. E–3, sheets 15 to 24, inclusive.

the waste and vent system were listed in this formal report. This report was handed to the contractor's representatives on April 23, 1951, and G. E. Lefler, project manager for Patti-MacDonald, answered in letter to resident engineer dated April 24, 1951.[7] Many of the deficiencies in the waste and vent system were answered by reference to the contractor's shop drawings.

Subsequent conferences were held and the deficiencies were discussed by representatives of the district office and the contractor, and in a letter dated May 3, 1951,[8] summarizing these discussions, the deficiencies were divided generally into four main categories, one of which was as follows:

"D. Methods of installation approved on shop drawings but not in accordance with specification, or contract drawings; i. e., item 32."

Under category D several deficiencies in the waste and vent system were listed, and the contractor was instructed to take corrective action as follows:

"Category D

"1. You are directed to take the action listed below under category D. This action is considered to be required by the specifications and/or contract drawings and notwithstanding the fact that the Government has approved certain shop drawings you are considered to be held responsible under the provision of paragraph SC–16 of the specifications.

"(*a*) No vent will be required on the lavatory drain pipe.

"(*b*) A vent will be installed in the bathtub drain line. Contractor will submit a shop drawing for approval prior to making the installation.

"(*c*) Clean-outs will be installed at or near the base of the vertical kitchen-sink and laundry-tub drain lines as required by paragraph M1.21B.

* * * * *

"(*e*) Clean-outs will be installed at ends of horizontal waste lines in accordance with contract drawings.

"(*f*) Install floor drains as specified in paragraph M1.09 or specifications and in a sanitary manner as shown on contract drawings.

"(*g*) Install roof drain that meets specifications; i. e., present roof vent is increased one pipe size about 4 inches below roof instead of 1 foot below roof as required in paragraph M1.26A of the specifications.

"(*h*) Replaced 90° ell on laundry-tray trap with fittings in accordance with paragraph M1.26C of the specifications."

By letter dated May 7, 1951, the contractor advanced his reasons for not correcting these deficiencies, stating that the installation was in accordance with approved shop drawings.[9] By letter dated May 22, 1951,[10] the district office modified its instructions to the contractor as follows:

"*Category D.*—Your item 1 (*b*): In this contract only, vent may be omitted from bathroom drain lines; savings resulting from not installing this vent will be the subject of future negotiations.

"Your item 1 (*c*): It is requested that clean-outs be installed as directed.

* * * * *

"Your item 1 (*e*): Horizontal waste lines in the basement need not have any additional clean-outs installed.

"Your item 1 (*f*): Floor drains are considered satisfactory.

"Your item 1 (*g*): Roof vent as installed is considered satisfactory.

"Your item 1 (*h*): Your plan of action is considered satisfactory."

As shown by this letter, the contractor's contentions as to the deficiencies in the waste and vent system were accepted by the district office except for item 1 (*b*) and 1 (*c*). As of September 28, 1951, there was no evidence that any further action had been taken by the district office to obtain credit for the savings resulting from the omission of the vent from the bathroom drain lines as mentioned in item 1 (*b*), quoted above, nor that any further follow-up was made to determine whether the contractor had installed the clean-outs at or near the base of the vertical kitchen-sink and laundry-tub drain lines as required in item 1 (*c*).

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[7] Exhibit No. E–4.
[8] Exhibit No. E–5.
[9] Exhibit No. E–6.
[10] Exhibit No. E–7.

On September 7, 1951, the district engineer was orally requested by representatives of the General Accounting Office to make a special field inspection of several buildings constructed under contract No. DA–48 to determine the current status of the deficiencies mentioned in the mechanical inspection report of April 19–20, 1951.[11] This inspection which was made on September 11, 1951, among other things confirmed the fact that the waste and vent system as installed by the contractor in accordance with the shop drawings did not conform to the one called for by the contract plans and specifications and that many substitutions, omissions, and deletions had been made by the contractor in its installation. The inspection also disclosed that the contractor had not installed clean-outs at the base of the vertical kitchen-sink and laundry-tub drain lines as specifically directed by the district office. Of the existing deficiencies in the waste and vent system, this was the only one that the district office directed the contractor to correct yet even this was not done.

General Accounting Office representatives, by memorandum dated September 18, 1951,[12] formally brought the attention of the district engineer to the substitutions, omissions, and deletions in the waste and vent system, with the request that he furnish information as to his views and the action he intended to take on this matter. This memorandum was answered by the district engineer by letter dated November 15, 1951,[13] and he applicable part is quoted below:

> "'4. Substitutions, omissions, and deletions on waste and vent system—DA–48, 61, 135, and 193.'
>
> "On contract 48, see (10) page 6 of exhibit A. Where substitutions do not affect functioning of system, savings to the Government will be recovered; otherwise, replacement is being required."

Item 10, page 6, of exhibit A, referred to above [14] is quoted as follows:

> "(10) Plumbing piping has not been installed in accordance with contract drawings. 100 percent units.
>
> "*Action to be taken.*—Contractor will credit Government for all savings."

Also attached to the letter of November 15, 1951, as exhibit C, was a memorandum dated November 3, 1951, in which the Fair-Cost Estimates Section computed the estimated credit due the Government representing the savings in costs resulting from substitutions, omissions, and deletions in the waste and vent system on contract No. DA–48 which the contractor was not required to correct. This estimated credit totaled $73,644, and consisted of the following:[15]

Omission of bathtub vents	$5,712
Clean-outs omitted at ends of horizontal waste lines	2,193
Plumbing piping not installed according to contract	65,739
Total	73,644

[11] Exhibit No. E–3, sheets 15 to 24, inclusive.
[12] Exhibit No. E–1.
[13] Exhibit No. E–2, sheet 3.
[14] Exhibit No. E–2, sheet 12.
[15] For details, see exhibit No. E–2, sheets 17 and 20.

According to letter dated October 29, 1951, attached as exhibit A to letter of November 15, 1951,[16] the contractor has been directed to correct deficiencies in the waste and vent system as follows:

"Category A	*Action to be taken*
"3. Sink traps in bathroom furnished without clean-out connection 'puttied in place.'	Contractor will replace trap with clean-out and with connection specified, without increase in cost. Connection will be standard screw fitting.
"Category B	
"2. Pipes not in accordance with paragraph M1.26 * * * of the specifications (¼ inch per foot; * * *).	Contractor claims pipes are at proper slope. Check in field—if deficient, install swing joints.
"Category D	
"2. Clean-outs will be installed at or near the base of the vertical kitchen-sink and laundry-tub drain lines, as required by paragraph M1.21B of the specifications.	Kitchen O. K., but laundry-tub line to be corrected by the contractor at no additional cost to the Government.
"4. Install floor drains as specified in paragraph M1.09 of specifications and in a sanitary manner, as shown on contract drawings.	Contractor will check and correct all floor drains extending above level of concrete floor, at no additional cost to the Government.
"5. Replace 90° ell on laundry-tray trap in accordance with M1.26c of the specifications.	Contractor will replace all such fittings not in accordance with specifications, at no additional cost to the Government.
"7. Install thermostatic trap on VTR in accordance with detail shown on contract drawing No. 25–01–06 (sheet 6 of 9, second revision).	Contractor will without additional cost to the Government correct deficiency to comply with contract drawings.
"14. M1.0 Plumbing: (11) Lavatory and sink traps are not connected to waste piping in accordance with Federal specifications. 100 percent units.	Contractor will correct, without additional cost to the Government. (See category C, No. 3.)

The substitution of test tees for clean-out wyes was brought to the attention of the district engineer as a separate item in the memorandum of September 18, 1951,[17] and in his answer of November 15, 1951,[18] he stated that:

"Credit to the Government will be required for the difference in cost, as the installation will function satisfactorily."

No information was furnished by the district engineer as to the estimated credit due the Government for this substitution, nor could it be determined whether this item was included in computing the estimated credit of $73,644.

Contract No. DA–61

In accordance with specifications,[19] shop drawings of the plumbing installation for contract No. DA–61 were prepared by Urban Plumbing & Heating Co., Tacoma, Wash., plumbing and heating subcontractor for Boespflug-Birch. By letter dated August 18, 1950,[20] the subcontractor forwarded the shop drawings to Boespflug-Birch with the following comment:

> "This installation has been revised to the extent that all lines are run below the basement floor slab in order to eliminate having several exposed pipes hanging low on the walls. The sizes of the piping have not been changed, but this revised design results in a more direct flow of wastes to the sewer, which we believe results in a much neater and more efficient installation."

Boespflug-Birch forwarded the shop drawings to the resident engineer on August 25, 1950,[21] and stated in this letter that there would be no change in the contract price. By letter dated September 14, 1950,[22] these shop drawings were

[16] Exhibit No. E–2, sheets 7, 8, 9, and 13.
[17] Exhibit No. E–1.
[18] Exhibit No. E–2, sheet 3.
[19] Appendix B (par. SC–15, shop drawings, pt. III, special conditions, of specifications No. 595–507–50–19 made a part of contract No. DA–61).
[20] Exhibit No. D–3.
[21] Exhibit No. D–4.
[22] Exhibit No. D–5.

approved by the district office with the exception of the roof drain line, which was to be moved to the opposite side of the building from that shown on the drawing of the underground soil, waste, and rain lines.

A comparison of the shop drawings with the contract plans and specifications will show that this contractor had also made changes involving substitutions, omissions, and deletions in the plumbing waste and vent system which resulted in savings in material, labor, and freight, but not to the same extent as the changes made in the shop drawings for contract No. DA–48. As of September 28, 1951, no change order amending the lump-sum contract price had been issued by the district office.

Substitutions, omissions, and deletions in the waste and vent system installed in the 33 buildings constructed under contract No. DA–61 were also formally brought to the attention of the district engineer by GAO memorandum dated September 18, 1951,[23] and in his answer by letter dated November 15, 1951,[24] the district engineer stated that where substitutions did not affect the functioning of the plumbing system, savings to the Government would be recovered, otherwise replacement would be required. The dollar value of the deficiencies, however, was not included in this letter.

Contract No. DA–135

In accordance with specifications[25] shop drawings of the plumbing installation for contract No. DA–135 were prepared by C. A. Hooper Co., Madison, Wis., plumbing and heating subcontractor for Patti-MacDonald on this contract as well as on contract No. DA–48. By letter dated February 3, 1951,[26] Patti-MacDonald submitted these shop drawings to the resident engineer for transmittal to the district office. On February 12, 1951, D. K. Josselyn, acting chief, construction division, office of the district engineer, returned these shop drawings to the contractor with the following statement:[27]

> "3. These drawings have been examined by this office, and are returned herewith without approval, since they do not fit the plans for subject contract."
>
> "4. It is requested that drawings be submitted which are in accord with the plans and specifications for the subject contract."

In a letter to the resident engineer dated March 5, 1951,[28] the contractor stated that he was submitting "six corrected copies of mechanical contractor's lay-out drawings" for approval, and on March 16, 1951,[29] the contractor was notified by the district office that these drawings were approved with certain minor exceptions.

A comparison of the approved shop drawings with the contract plans and specifications, will show that changes were made involving substitutions, omissions, and deletions in the plumbing waste and vent system which resulted in savings in material, labor, and freight. In addition to the changes which were more or less common to all four contracts such as relocating basement waste pipes, eliminating part of the laundry tray vent pipes and substituting test tees for clean-out Y's, the subcontractor's shop drawings show the waste lines of the bathroom lavatories draining into the laundry tray vent pipes thus wet venting the laundry tray drains whereas the contract plans call for a dual vent from the lavatories of every two units connecting with the main soil stack at a point below the laundry tray vents with the waste lines connecting with the main soil stack below the water closets. Publication No. BH–13, Recommended Minimum Requirements for Plumbing, issued by the National Bureau of Standards,[30] contains a recommended plumbing code which prohibits connections resulting in wet vents. Section 95 of this code (p. 33) is quoted in pertinent part as follows:

"Section 95. *Prohibited connections.*—* * * No soil or waste vent, circuit or loop vent above the highest installed fixture on the branch or main shall thereafter be used as a soil or waste pipe."

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[23] Exhibit No. E–1.
[24] Exhibit No. E–2, sheet 3.
[25] Appendix C (par. SC–15, Shop Drawings, pt. III, Special Conditions of Specifications No. 595–507–51–31 made a part of contract No. DA–135).
[26] Exhibit No. D–6.
[27] Exhibit No. D–7.
[28] Exhibit No. D–8.
[29] Exhibit No. D–9.
[30] Appendix E.

Division M1.01, work included, of the specifications for contract No. DA–135 provides that the contractor shall:

> "Furnish all plumbing work necessary for a complete and satisfactory installation as shown on the drawings and specified herein and any incidental work not shown or specified which can reasonably be inferred or taken as belonging to the work and *necessary in good practice* to provide the complete system * * *." [Italics supplied.]

Any practice contrary to minimum requirements for plumbing recommended by the National Bureau of Standards raises the question as to whether contract specifications have been complied with.

On March 28, 1951, the contractor requested permission to install 3-inch vent stacks throughout each building in lieu of one 4-inch vent stack at unit No. 1 and 2½-inch vent stacks in all other units as called for by the revised contract drawings made a part of addendum No. 3, dated November 27, 1950, to the contract specifications.

On May 17, 1951, the contractor was notified that approval was given to use 3-inch vent stacks.[31]

The district office by letter dated May 8, 1951,[32] informed the contractor that continued examination of the approved shop drawings (Nos. 5084–1, –2, and –3) indicated that the approval was not warranted and this approval was therefore rescinded. The contractor was also requested to submit new drawings showing the piping, vents, and clean-out facilities to the correct sizes as required by the contract plans and specifications. On May 28, 1951,[33] the contractor submitted drawings showing a proposed installation of waste and vent stacks and hot- and cold-water risers to the bathroom and stated that a mock-up of this installation had been inspected by district engineer personnel.[34] On June 8, 1951,[35] one copy of an unnumbered drawing showing an isometric plumbing lay-out was transmitted to the contractor, and it was stated in this letter that this drawing had been reviewed by the district office was stamped "Approved."

On June 15, 1951,[36] copies of this isometric shop drawing were transmitted to the resident engineer, and in his endorsement Lieutenant Colonel Dorland stated that this drawing involved some minor deviations from the design shown in the contract drawings and specifications and that these changes would be shown on the as-built drawings. On June 28, 1951,[37] the resident engineer notified the contractor that there would be no extension of time as a result of these changes. Subsequently the contractor requested an extension of time in the contract completion date because of the delay of the district office in finally approving the shop drawings, but this request was denied and the contractor was so informed by the resident engineer on August 24, 1951.[38]

Although the shop drawings had been disapproved twice, a comparison of those finally approved with the contract plans and specifications will show that the contractor had made many changes involving substitutions, omissions, and deletions in the plumbing waste and vent system which resulted in considerable savings in material, labor, and freight. Yet, as was the case with contract No. DA–48, the district office as of September 28, 1951, had not issued any change order amending the lump-sum contract price.

Substitutions, omissions, and deletions in the waste and vent system installed or in the process of being installed in the 38 buildings under construction under contract No. DA–135 were also formally brought to the attention of the district engineer by GAO memorandum dated September 18, 1951,[39] and in his answer by letter dated November 15, 1951,[40] the district engineer stated that where the substitutions did not affect the functioning of the plumbing system, savings to the Government would be recovered, otherwise replacement would be required; however, the dollar value of the deficiencies was not included in this letter.

Contract No. DA–193

Spenard Plumbing & Heating Co., Anchorage, Alaska, plumbing subcontractor for Patti-MacDonald on contract No. DA–193, did not submit shop drawings of the plumbing installation to the district office. However, on June 26, 1951,[41]

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[31] Exhibits Nos. D–10 to D–14, inclusive.
[32] Exhibit No. D–15.
[33] Exhibit No. D–16.
[34] Photograph No. 41.
[35] Exhibit No. D–17.
[36] Exhibit No. D–18.
[37] Exhibit No. D–19.
[38] Exhibit Nos. D–20 to D–24, inclusive.
[39] Exhibit No. E–1.
[40] Exhibit No. E–2, sheet 3.
[41] Exhibit No. D–25.

Patti-MacDonald submitted a sketch showing the proposed installation of waste lines for this contract, and this sketch was approved by the resident engineer on June 30, 1951.[42] No further information was available pertaining to the plumbing waste and vent system. Photographs of several buildings under construction under contract No. DA–193 indicate that the plumbing waste and vent system being installed in these buildings is similar to the installations under contract No. DA–135.[43] Although construction under contract No. DA–193 is in its early stages, indications are that the contract plans and specifications will not be followed in the installation of the waste and vent system and that many changes are being and will be made involving substitutions, omissions, and deletions which will result in substantial savings in material, labor, and freight.

This matter was also formally brought to the attention of the district engineer by GAO memorandum dated September 18, 1951,[44] and in his answer by letter dated November 15, 1951,[45] the district engineer stated that where the substitutions did not affect the functioning of the plumbing system, savings to the Government would be recovered, otherwise replacement would be required; however, the dollar value of the deficiencies was not included in this letter.

General

Comparison of the shop drawings with the contract plans and specifications will show that the plumbing waste and vent systems installed or in the process of being installed under contracts Nos. DA–48, DA–61, DA–135, and DA–193, do not conform to the applicable contract plans and specifications. Based on information contained in various publications issued by the National Bureau of Standards,[46] the question arises as to (1) whether these waste and vent systems meet the minimum standards recommended by these publications, (2) whether the structural life of the buildings has been impaired, (3) whether the waste and vent systems will be expensive to maintain, and (4) whether insanitary conditions will result from these installations. The degree to which the deficiencies in the waste and vent systems may affect the structural life of the buildings, maintenance, and sanitation can only be evaluated by qualified engineers.

INSTALLATION OF RADIATOR VALVES ON CONVECTORS

Cut-off valves were omitted by the contractors from all units of connection in the eight-family quarters constructed under contracts Nos. DA–48 and DA–61. Contract specifications [47] permitted contractors the option to furnish and install either cast-iron radiators or convector-type heating units but specifically called for a valve "on supply to each unit of radiation and convection."

The plumbing and heating work required under contracts Nos. DA–48 (Patti-MacDonald) and DA–61 (Boespflug-Birch) was performed by subcontractors C. A. Hooper Co. and Urban Plumbing & Heating Co., respectively. The respective subcontractors elected to install convectors in lieu of cast-iron radiators. Each dwelling unit contains nine convectors. The 51 buildings constructed under contract No. DA–48 contain 408 dwelling units and 3,672 convectors. Under contract DA–61 there are 33 buildings containing 264 dwelling units and 2,376 convectors.

Paragraph M 2.16 (C), division M 2.0 of specifications [48] which form a part of contracts Nos. DA–48 and DA–61, requires the installation of a cut-off valve on each convector. The valve does not appear in the typical convector diagram shown on sheets 7 and 8 of contract mechanical drawings Nos. 25–01–06 and 25–01–08, respectively, although the installation of a valve is clearly indicated

[42] Exhibit No. D–26.
[43] Photographs Nos. 50 to 59, inclusive.
[44] Exhibit No. E–1.
[45] Exhibit No. E–2, sheet 3.
[46] Appendix E:
Recommended Minimum Requirements for Plumbing, Publication No. BH 13, Elimination of Waste Series, Report of Subcommittee on Plumbing of the Building Code Committee.
Plumbing Manual, Building Materials and Structures Report BMS 66, Report of Subcommittee on Plumbing Central Housing Committee on Research, Design, and Construction.
Stack Venting of Plumbing Fixtures, Building Materials and Structures Report BMS 118.
Wet Venting of Plumbing Fixtures, Building Materials and Structures Report BMS 119.
Field Inspectors' Check List for Building Construction, Building Materials and Structures Report BMS 18, Report of Subcommittee on Structure, Central Housing Committee on Research, Design, and Construction.
[47] Exhibit No. B–1.
[48] Exhibit No. B–1.

in the typical radiator diagram shown on the same sheets. Article 2 of pertinent contracts provides, however, that "* * * Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern * * *."

Further details follow:

Contract No. DA–48

As required by paragraph M 2.04 of contract specifications, Patti-MacDonald (contract No. DA–48) submitted a list of heating material and mechanical equipment on July 6, 1950,[49] for approval of the contracting officer. The material listed was approved conditionally by the resident engineer on July 11, 1950,[50] notwithstanding the fact that it was stated in the list that valves were not required with convectors.

In addition to cut-off valves, paragraph M 2.14 (A) of contract specifications[51] require convectors complete with adjustable chain-operated dampers. Installation of a chain-operated damper does not dispense with necessity for a cut-off valve.[52] A damper operates merely to control the amount of convection. The primary purpose of the valve is to completely shut off steam where and when not heat is desired, and to permit removal of the convector for repair or replacement without interfering with heat in other units of the heating system.

In the Anchorage area the average annual temperature variation is approximately 125 degrees. It was the unanimous opinion expressed by the district engineer and other Army engineer officers, the resident engineer, zone engineer, staff civilian engineers, as well as qualified journeymen of the plumbing and heating trade contacted, that individual valves on all convectors are an essential and necessary element of heating systems in buildings such as the eight-family quarters, and particularly so under climatic conditions that exist in Alaska.

The omission of valves from convectors was first called to the attention of Patti-MacDonald (DA–48) by the resident engineer on April 9, 1951,[53] and the contractor was directed to proceed in strict compliance with contract specifications and install appropriate valves on the supply line to each convector. The contractor replied by letter dated April 11, 1951,[54] applying an entirely different interpretation to the specifications and denying contract requirements and the feasibility of installing individual valves on convectors. The resident engineer referred the matter to the district engineer on April 18, 1951.[55]

The contracting officer's decision of May 11, 1951,[56] stated that radiator valves on all convectors would be required in accordance with specifications, and the contractor was so advised on May 12, 1951.[57] By letter dated June 1, 1951,[58] the contractor advanced further reasons for not proceeding with the installation of valves on convectors.

In a memorandum dated June 7, 1951,[59] the resident engineer recommended that final payment due Patti-MacDonald under contract No. DA–48 be withheld until valves were installed in accordance with contract specifications. A more detailed decision was rendered by the contracting officer on July 9, 1951,[60] and by letter dated July 13, 1951[61] the contractor was again reminded to install valves on convectors. On July 24, 1951,[62] the contracting officer reiterated his decision in a registered letter addressed to the contractor's home office as required by article 15 of the contract. In that letter the contractor was cautioned "that appeal, if made, should be based on recovery of cost to you for the completion of work which you consider as 'extra' work, rather than as an appeal as to whether or not you should perform work on which you have received definite

[49] Exhibit No. B–2.
[50] Exhibit No. B–3.
[51] Exhibit No. B–1.
[52] Exhibit No. B–16, sheet 5, par. f.
[53] Exhibit No. B–4.
[54] Exhibit No. B–5.
[55] Exhibit No. B–6.
[56] Exhibit No. B–7.
[57] Exhibit No. B–8.
[58] Exhibit No. B–9.
[59] Exhibit No. B–10.
[60] Exhibit No. B–10.
[61] Exhibit No. B–11.
[62] Exhibit No. B–12.

notice to proceed since by the terms of your contract it is your obligation to proceed diligently with the work as previously directed notwithstanding any disputed claims." In letter dated August 3, 1951, and telegraphic communication of the same date,[63] the contracting officer was advised by the contractor that he would proceed at once, under protest, with installation of convector valves as previously directed.

The contractor, however, notified contracting officer by registered letter dated August 16, 1951,[64] as follows:

> "* * * We object to your decision to proceed on this installation and we are holding action on this in abeyance, pending your response to request contained herein. * * * We did not receive a directive until July 24, 1951. * * * the excessive expense to proceed at this late date with this installation creates additional costs of repainting walls, raising convectors, removing piping, and installing valves, is not our responsibility and before proceeding we sincerely request that assurance of payment for this work will be granted. * * * this letter will be considered as our formal appeal if you adhere to your ruling of July 24, 1951."

On August 22, 1951,[65] the contractor was reminded by contracting officer that he had been directed repeatedly to install the valves as required by contract specifications, and that further discussion of this point was considered unnecessary. At the same time, the contracting officer notified contractor that his formal appeal was being processed in accordance with existing procedures. The decision of the contracting officer was based on his findings of fact.[66]

Construction cost data available in estimates section of the district office indicate that the cost to the contractor for labor and material necessary to furnish and install valves during the appropriate stage of construction was estimated at approximately $8 per valve, or a total of about $29,000 for all valves required under contract No. DA–48. The cost to the contractor of installing valves at this late date is estimated by several engineers and officials of the district office at amounts varying from $60,000 to $110,000. The additional cost will be incurred due to necessity for having to remove and relocate the convectors, adjust and rethread steam risers, and repaint soiled or damaged finished areas. Additional costs are expected as a result of having to perform this work in quarters already occupied.

Descriptive data relative to the valve proposed to be installed under contract No. DA–48 as indicated by contractor's letter dated August 13, 1951,[67] was formally approved on August 27, 1951.[68] In response to the contractor's request on August 29, 1951, for extension of contract completion date to allow for installation of the valves, the contracting officer advised on September 6, 1951,[69] that the valves were an original contract requirement and that an extension of time, therefore, was not warranted. The adjusted date established for completion of all work required under contract No. DA–48 was June 20, 1951. The contracting officer stated in letter dated November 15, 1951,[70] that damages at rate of $235.25 per day resulting from contractor's failure to complete all contract work within the date specified, would be assessed against Patti-MacDonald until final acceptance of the project by the Government, completed in accordance with contract specifications. The accrued liability for damages against this contractor already are in excess of $45,000.

According to information furnished by the contracting officer in his letter of November 15, 1951,[71] the valves have been procured by Patti-MacDonald and the contractor is finally proceeding with their installation on each convector.

Contract No. DA–61

Construction of the 33 eight-family quarters buildings by Boespflug-Birch under contract No. DA–61 was substantially completed on September 15, 1951. This contract, which was based on specifications that are practically identical to contract No. DA–48, was awarded later and the construction progress schedule was approximately 2 months behind contract No. DA–48. The project sites for the two contracts are adjacent to each other.

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[63] Exhibit No. B–13.
[64] Exhibit No. B–14.
[65] Exhibit No. B–15.
[66] Exhibit No. B–16.
[67] Exhibit No. B–17.
[68] Exhibit No. B–18.
[69] Exhibit No. B–19.
[70] Exhibit No. E–2, sheet 2.
[71] Ibid.

Boespflug-Birch proceeded with the installation of convectors without providing cut-off valves; however, the convectors were mounted on the walls in a manner that facilitated connection with the steam risers by means of a union or coupling and short length of pipe in lieu of a valve. This arrangement made it possible for the contractor to return later and simply remove the coupling and short section of pipe and install the valves with a minimum of additional material and labor costs.

During late August or early September 1951, and before any of the buildings built under contract No. DA–61 were accepted by the Government for useful occupancy, Boespflug-Birch proceeded with the installation of valves on convectors. In his letter of November 15, 1951,[72] the district engineer stated that installation of the valves under this contract was completed before any of the quarters were occupied by military personnel.

As indicated in the district engineer's letter of November 15, 1951, Boespflug-Birch has submitted notice of intent to appeal the decision relative to installation of convector valves in accordance with article 15 of the contract.

Contracts Nos. DA–135 and DA–193

Contracts Nos. DA–135 and DA–193 were awarded to Patti-MacDonald and provide for the construction of 38 and 23 eight-family quarters buildings, respectively. The plumbing and heating work is being performed by C. A. Hooper Co. (DA–135) and Spenard Plumbing & Heating Co. (DA–193). Plans and specifications forming a part of these contracts are similar to those applicable to contracts Nos. DA–48 and DA–61, and require the installation of radiator valves on convectors.

By letter dated September 6, 1951,[73] the contractor restated his interpretation of contract specifications as not requiring radiator valves on convectors. In response, the contracting officer informed Patti-MacDonald by registered letter dated September 17, 1951,[74] that "for the same reasons set forth in my decision regarding contract No. DA 95–507–eng–48, you are required to furnish and install a valve on the supply to each unit of convection under contracts Nos. DA–95–507–eng–135 and 193."

BATHTUBS AND PLUMBING FITTINGS

The bathtubs installed in the eight-family quarters constructed under contracts Nos. DA–48 (Patti-MacDonald) and DA–61 (Boespflug-Birch) do not conform to contract specifications. As of September 28, 1951, no decreasing change orders amending the lump-sum contract price had been executed so that the Government would obtain the savings resulting from the installation of these bathtubs. Interior and exterior dimensions of the tubs supplied are not equal to minimum dimensions required by contract specifications.

According to information furnished orally by Army engineer officers and civilian engineers on duty in the Alaska district, as well as qualified journeymen and master plumbers, the bathtubs installed are the lowest in price and the most competitive merchandise available in the plumbing supply market. This information was substantiated by representatives of principal manufacturers and distributors of plumbing supplies and fixtures contacted in Seattle and San Francisco.

Specifications applicable to invitations to bid Nos. S95–507–50–9 and S95–507–50–19, later forming a part of contracts Nos. DA–48 and DA–61, respectively, permitted contractors the option of furnishing either cast-iron or formed-metal bathtubs. The district engineer did not require submission of alternate bids by bidders who elected or proposed to furnish and install formed-metal tubs, which are substantially the cheaper of the two types of fixtures. The option to furnish formed-metal plumbing fixtures was eliminated from the specifications covering contracts Nos. DA–135 and DA–193 for the construction of 38 and 23 eight-family quarters buildings respectively, and these specifications required installation of cast-iron bathtubs and kitchen sinks.

The following is quoted from part IV, division M 1.0, page 1 of plumbing specifications:

"M 1.03 *Materials*

"Standard in every way, in first-class condition and the best of their respective makes. Dimensions and capacities given are minimum, unless

[72] Exhibit No. E–2, sheet 2.
[73] Exhibit No. B–20.
[74] Exhibit No. B–21.

otherwise stated. All materials of similar class or service shall be of one manufacture * * *."

Paragraph M 1.06 (A) [75] of contract specifications requires all fixtures to be of one manufacturer, a concern of established reputation which manufactures or assembles plumbing units and assumes full responsibility for each and every part of such unit, complying with Federal Specifications WW–P–541a (cast iron) or WW–P–542 (formed metal). The bathtubs installed under contracts Nos. DA–48 and DA–61 were represented as complying with Federal Specifications WW–P–542a.[76]

Federal Specifications WW–P–542 were revised and designated WW–P–542a effective July 30, 1950. On contract No. DA–48, the invitation to bid was dated March 20, 1950, the bids were opened April 27, 1950, and contract was executed May 11, 1950. On contract No. DA–61, the invitation to bid was dated May 22, 1950, the bids were opened June 6, 1950, and contract was executed June 30, 1950. Specifications applicable to the two contracts are practically identical. Paragraph SC–23—Quality of Articles, Materials and Equipment—of Special Conditions, Part III, of contract specifications provides that "unless otherwise authorized, articles, materials, and equipment which are specified to be in accordance with referenced standard published specifications, as cited in the Technical Provisions, shall meet the requirements of the applicable published specifications and revisions thereof and amendments thereto current on the date of the Invitation for Bids."

Plumbing and heating subcontractors under contracts Nos. DA–48 and DA–61 are C. A. Hooper Co., Madison, Wis., and Urban Plumbing & Heating Co., Tacoma, Wash., respectively.

Interior and exterior dimensions of the tubs furnished, as compared with minimum specification requirements (Federal Specifications WW–P–542, F60RR and F60RL formed-metal fixture with right or left drain), are as follows:

Dimensions of bathtubs installed:	Federal Specifications WW–P–542 (F60RR and F60RL):
Inside depth, 12⅝ inches.	Inside depth, 15 to 16 inches.
Outside height, 13½ inches.	Outside height, 16 to 17 inches.
Outside length, 60 inches.	Outside length, 60 inches.
Outside width, 30⅝ inches.	Outside width, 30⅝ to 32 inches.

These measurements were made by Gary D. King, zone engineer, at the request and in the presence of representatives of the General Accounting Office in August 1951, and the fact that the bathtubs installed did not meet minimum dimensions of the applicable Federal specifications was subsequently confirmed during the inspection made on September 11, 1951, which was made by representatives of the district office and resident engineer's office also at the request of General Accounting Office representatives.[77]

The plumbing fixtures and fittings furnished under each of the two contracts described above are not of one manufacture. Under contract No. DA–48, Allianceware formed-steel bathtubs and kitchen sinks, Crane vitreous china lavatories and water closets, and Sterling shower fixtures and diverter valves were installed. The cast-cement basement laundry trays were identified as being of McCormick manufacture and the valves and various fittings throughout are of Sterling and Frost manufacture. Under contract No. DA–61, Allianceware and Norris-ware formed-steel bathtubs, Youngstown formed-steel kitchen sinks, American Standard vitreous china lavatories and water closets, Repcal shower fixtures and diverter valves, and McCormick cast-cement laundry trays were installed. The various other valves and fittings supplied are manufactured by Repcal, Brass Craft, Frost, and American Standard.[78] Gary D. King, the zone engineer having immediate supervision of this construction, stated that six Norris-ware bathtubs were substituted by Boespflug-Birch for a like number of Allianceware tubs damaged in shipment.

Contract specifications require all plumbing fixtures and fittings to be "of one manufacturer, standard in every way, and the best of their respective makes." The buildings are of permanent-type construction. Extreme climatic conditions, transportation, distance from supply sources, and procurement and stocking of necessary replacement fittings and materials are a major considera-

[75] Exhibit No. C–1.
[76] Exhibit No. C–2.
[77] Exhibit No. E–9, sheet 3, item No. 34.
[78] Exhibit No. C–6, also D–3.

tion in Alaska in connection with future maintenance and operation. Substandard-quality items of plumbing materials or fittings manufactured or supplied by several sources other than a manufacturer of the principal plumbing fixtures, "a concern of established reputation which manufactures or assembles plumbing units and assumes full responsibility for each and every part of such unit," [79] will contribute heavily to replacement problems and excessive maintenance expense which specification provisions were designed to eliminate.

The following is quoted from Division M 1.0, Plumbing, part IV of contract specifications:

> "M 1.05 *Approvals.* Within thirty days after the signing of this Contract, submit in triplicate for approval of the Contracting Officer, a complete list and descriptive matter of the following equipment and materials proposed to be furnished and installed. The descriptive matter shall include the name and address of the manufacturer, trade name and catalog number, and illustrated catalog data with rating, capacities, and dimensions as applicable. Each set shall be assembled in a portfolio bearing the Contractor's name, location of the project and the project number.
>
> "1. Plumbing fixtures
> 2. Hot water circulating pump
> 3. Valves
> 4. Floor drains
> 5. Roof drains
> "6. Thermometers
> 7. Hose bibbs
> 8. Water pipe and fittings
> 9. Drainage pipe and fittings
> 10. Sump pump"

The list and descriptive matter pertaining to the plumbing installation for contract No. DA–48 was submitted by the contractor on July 7, 1950, for approval of the contracting officer.[80] The descriptive list, as well as the brochure covering plumbing fixtures and fitings, was approved on July 10, 1950.[81] The list as submitted and approved described Crane Co., Chicago, Ill., as the manufacturer of the bathtubs and other plumbing fixtures to be furnished and installed.

The records of the district office do not indicate that ordinary sampling and tests were undertaken, as is contemplated in paragraph F, page 109, of Federal Specifications WW–P–541a, including the simple lemon test for acid resistance of enamel-finish fixtures for the purpose of detecting general noncompliance and manufacturing defects. Copy of a telegram dispatched to the plumbing and heating subcontractor by Crane Co., Madison, Wis., on May 1, 1951,[82] was accepted by the district engineer [83] as satisfactory evidence that Allianceware bathtubs as installed were in conformance with applicable Federal specifications.

A telegram dispatched to the plumbing and heating subcontractor (contract No. DA–48) by Crane Co., Madison, Wis., on April 24, 1951,[84] describes Allianceware, Inc., as a subsidiary of Crane Co. An official of the Crane Co. at the home office in Chicago, Ill., stated that Allianceware, Inc., is not a subsidiary of or controlled by Crane Co., although Crane does own some Allianceware capital stock.

The brochure was prepared by the Crane Co. branch office, Madison, Wis., for C. A. Hooper Co., plumbing and heating subcontractor, whose home office is also located in Madison. Crane Co. does merchandise plumbing fixtures and fittings other than their own manufacture in various of their branch warehouses and salesrooms when such fixtures and fittings are not in direct competition with Crane-manufactured items. (Crane does not manufacture formed-metal plumbing fixtures.) Sterling Manufacturing Co. fittings are sold and guaranteed by the Crane Co.

The tub and assembly shown in contractor's plumbing brochure was described therein as Crane No. 2–176 or 2–177 Allianceware with Sterling shower fixture and diverter valve. As illustrated in the Crane catalog, their item No. 2–176 or 2–177 includes the Allianceware tub complete with Crane standard-quality Regal Dial-Ese valves and shower fittings, and contemplates such an assembly under that catalog number. This point was verified through contact with a Crane representative.

Available district office records indicated that as a result of routine inspection several general construction and mechanical inspectors employed by the district office reported to the resident engineer and district engineer as early as the spring

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[79] Exhibit No. C–1.
[80] Exhibit No. C–3.
[81] Exhibit No. C–4.
[82] Exhibit No. C–2.
[83] Exhibit No. E–5, sheet 1.
[84] Exhibit No. C–5.

of 1951 that the bathtubs being installed were not equal to contract specifications. Only a rellatively small numebr of the fiivxture
tions. Only a relatively small number of the fixtures had been installed at that time, but a larger quantity had been purchased by the contractor and transported to the job site. All of these bathtubs had been installed by August 1951. However, until requested by General Accounting Office representatives in August 1951, no measurements of the Allianceware bathtubs had been made by the district office to determine whether they met minimum dimensions of the applicable Federal specifications.

This matter was formally brought to the attention of the district engineer by General Accounting Office memorandum dated September 18, 1951,[85] and he advised in letter dated November 15, 1951,[86] that the amount still due Patti-MacDonald under contract No. DA–48 would be reduced by a sum equivalent to the savings accruing to the contractor through installation of bathtubs which do not conform to contract specifications.

The computation which accompanied the district engineer's letter of November 15, 1951, shows a difference of approximately $20 per unit[87] between the cost of the formed-metal bathtub as installed and a cast-iron tub that is equal to specifications. The computation showing a net credit of $8,109 due from the contractor resulting from installation of formed-metal tubs is set forth below:

> "Enameled pressed-steel bathtubs, as installed, less in cost than specified enamel cast iron.
>
> Reduction in cost for substitution, 1 building:
>
> | | |
> |---|---|
> | Material ($69.52 × 1.285) | $89 |
> | Labor | ----- |
> | Freight (18 cwt. × $3.02 × 1.285) | 70 |
> | Total for 1 building | 159 |
> | Reduction in cost for substitution (51 buildings × $159) or credit due to Government because of substitution | 8,109" |

On August 25, 1950,[88] Boespflug-Birch (contract No. DA–61) submitted a plumbing material list for approval of the contracting officer as required by pertinent specifications. At that time full approval was withheld pending submission of further detailed information.[89] Additional descriptive data and a plumbing and heating materials brochure submitted by the contractor on September 26,[90] and December 11, 1950,[91] were approved by the resident engineer on December 19, 1950.[92] Although contract No. DA–61 was awarded approximately 6 weeks subsequent to award of contract No. DA–48, the plumbing materials brochure for DA–61 was finally approved about 5 months after approval of the material list and brochure for DA–48.

The material list,[93] prepared by Urban Plumbing & Heating Co. of Tacoma, Wash., plumbing and heating subcontractor under contract No. DA–61, shows clearly that the contractor originally proposed to furnish and install a 5-foot, acid-resisting, cast-iron bathtub manufactured by American Standard Sanitary Manufacturing Co., Pittsburgh, Pa., catalog No. P–2225–27. Description given the item in the manufacturer's general catalog is as follows: "P–2225–27—'Master Pembroke' cast iron, recess bathtub, 60'' x 30¾'' x 16'' acid-resisting, left or right drain." The typewritten material list[94] submitted by Boespflug-Birch (contract No. DA–61) originally proposing to furnish and install American Standard, Master Pembroke, cast-iron bathtubs was changed by handwriting to show a bathtub manufactured by Allianceware, Inc., Alliance, Ohio.

The district engineer indicated in letter dated November 15, 1951,[95] that the balance due contractor under contract No. DA–61 would be adjusted in favor of the Government for an amount equal to the difference between the cost of the formed-metal bathtubs installed and cost of tubs which would conform to contract specifications.

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[85] Exhibit No. E–1.
[86] Exhibit No. E–2, sheets 2, 3, and 7.
[87] Exhibit No. E–2, sheet 17.
[88] Exhibit No. C–6, also D–3 and D–4.
[89] Exhibit No. C–8.
[90] Exhibit No. C–8.
[91] Exhibit No. C–9.
[92] Exhibit No. C–10.
[93] Exhibit No. C–6.
[94] Exhibit No. C–6.
[95] Exhibit No. E–2, sheet 3.

SUBSTITUTION OF WELCHBOARD FOR STRIATED PLYWOOD

The specifications and drawings made a part of all contracts for the construction of eight-family quarters require certain exterior areas of the buildings to be covered with striated plywood, one side of which is scored with lines forming alternating ridges and furrows known as striations. On the basis of allegations of scarcity of supply and delayed deliveries made by two contractors (Patti-MacDonald and Boespflug-Birch), Welchboard was substituted on contracts Nos. DA–48 and DA–61 and 51 and 33 buildings, respectively.

Welchboard is described by its manufacturer as an imported one-side panel material having a face of waterproof, resin-fused wood plastic permanently bonded to a base of superior-ply, exterior-type, Douglas-fir plywood. The surface, which is approximately one-sixteenth of an inch thick, appears to consist of a fine wood dust, probably the residue from processing ordinary plywood, fused with resin plastic under pressure with heat. At the present time, with approximately 1 year's exposure to the weather and in some cases even less, Welchboard shows serious surface ruptures and cracks, and, in addition, many panels show a tendency to buckle and curl sufficiently in some instances to draw nails particularly on the sunny side of the buildings. Up to June 1951, over 4,000 square feet of damaged Welchboard siding had been replaced, and even the latter panels are showing the same signs of surface rupturing and cracking. The manufacturer of Welchboard claims that these surface ruptures and cracks do not affect its strength and durability in any way, but they do contribute in a large measure to the poor and unattractive physical appearance of the buildings.

According to an estimate prepared by the estimates section of the district office on November 3, 1951, the cost of Welchboard (material and freight only) was computed to be $55 a building less than striated plywood. The total reduction in cost by reason of this substitution on contracts Nos. DA–48 and DA–61 amounted to $2,805 and $1,815, respectively, or a total of $4,620. Normally, where a contractor is permitted to substitute a cheaper material than that provided for in the contract plans and specifications, proper contract procedure requires the contractor to submit a formal proposal which upon approval results in a change order adjusting the lump-sum contract price whereby the Government obtains the benefit in the form of a credit for any savings in costs arising from the substitution. As of September 28, 1951, the records of the district office disclose that no change orders to contracts Nos. DA–48 and DA–61 were authorized and approved by the contracting officer amending the lump-sum contract price, and the savings in costs resulting from the substitution of Welchboard for striated plywood accrued to the benefit of the contractors.

The background and details of these transactions follow.

Contract No. DA–48

Division 4.0, page 4, Carpentry and Millwork, paragraph 4.03, of part IV of the specifications made a part of contract No. DA–48 (Patti-MacDonald) covering the construction of 51 eight-unit family dwellings, provides as follows:

> "4.03 Finish carpentry shall conform to the following requirements:
> "A. Plywood siding:
> "One-half inch, five-ply 'Exterior' striated or plain as noted on drawings, fir plywood, 'EXT–DFPA.A–B' grade. * * *"

Since striated plywood is not manufactured in the one-half-inch, five-ply size, the specifications were amended prior to the date of bid opening (April 27, 1950) by addendum No. 1, dated April 14, 1950, as follows:

> "The respective drawings for types A, C, D, or E structures shall be as hereinafter stated:
> "Sheet No. 3.
> "All exterior striated plywood shall be three-eighths inch."

As indicated in the specifications, plywood siding shall be striated or plain as noted on the drawings; but, by reference to sheet No. 3 of the drawings, it was observed that only striated plywood was to be used on the areas not covered by cement-asbestos board siding. It was stated that alternate use of striated plywood with asbestos siding would tend to reduce the square, boxlike appearance of the buildings and would make them more architecturally pleasing to the eye.

Fair-cost estimates prepared by the Estimates Section of the district office prior to advertising for bids (March 20, 1950), disclosed that the exterior area of each building to be covered by striated plywood approximated 4,400 square

feet, or a total of 224,400 square feet for 51 buildings. The cost per square foot was estimated at 19 cents for material, 21 cents for labor, and 1 cent for freight, or a total unit cost at job site of 41 cents. The cost of installing striated plywood on each building was estimated at $1,804, or a total of $92,004 for 51 buildings.

A review of the records of the district office and the office of the resident engineer disclosed that on June 7, 1950, the chief of the engineering division approved a sample of Linwood siding submitted to the district office by Patti-MacDonald representatives as a substitute for striated plywood and stated that the possibility of a price reduction should be investigated.[96] This memorandum also indicated that the Modifications and Approval Section forwarded a letter to the resident engineer with respect to this matter on June 9, 1950; however, a copy of this letter could not be located. The original proposal to substitute Linwood siding for striated plywood was apparently made orally by Patti-MacDonald representatives, as there was no correspondence on file indicating that a formal request had been made for this substitution before June 7, 1950.

Although Linwood siding had already been approved as a substitute on June 7, 1950, the contractor was apparently requested to submit a formal proposal for permission to make the substitution, because by letter dated June 14, 1950, the resident engineer was notified by Patti-MacDonald that the manufacturer of striated plywood was unable to deliver this material and that production of the plant was oversold and allocations had been made so far in advance it was not possible to secure striated plywood in time for use on this project.[97] In this letter, the contractor also requested permission to use Linwood siding in lieu of striated plywood and stated that a sample of the former had already been submitted through the district office. On June 15, 1950, this proposal was forwarded by the resident engineer to the district office for consideration.[98]

The records of the district office do not indicate the action taken in connection with this proposal; however, by letter dated July 15, 1950, two alternate proposals were submitted to the resident engineer by the contractor.[99] In the first proposal, the contractor stated that Welchboard could be used but that the manufacturer recommended against its installation as an exterior surface without the application of at least three coats of paint or spar varnish which would involve an additional cost of $29,344. As an alternate proposal, the contractor requested permission to install three-eighths-inch, exterior-grade, plain plywood, in which case a credit of $4,014.72 could be advanced to the Government. On July 18, 1950, the letter containing these proposals was forwarded by the resident engineer to the district office for consideration.[1]

In a telegram dated July 21, 1950, addressed to the district engineer, West Coast Plywood Co., Aberdeen, Wash., manufacturer of Welchboard, stated that it was basically developed for outdoor uses and that very good coverage of Welchboard had been obtained with one coat of Rodda NR–25 double-strength shingle stain or with a one-coat application of a mixture of 4 pounds of Rodda shingle stain, one-half gallon of turpentine, and one-half gallon of pure boiled linseed oil.[2] It was also stated that two coats of varnish had proved satisfactory.

In a letter to the resident engineer dated July 26, 1950, the contractor proposed to substitute Welchboard for striated plywood and to apply one coat of Rodda stain or the mixture of Rodda stain, turpentine, and linseed oil to it.[3] It was also stated in this letter that the installation of Welchboard was slighly more expensive than striated plywood, but that the additional cost would be absorbed and the change made at no expense to the Government. This proposal was approved by the district office, and on August 2, 1950, the contractor was so advised, the letter stating that there would be no extension of time or change in contract price as a result of this substitution.[4] Although the estimates section of the district office was requested on July 18, 1950, to prepare a project cost estimate showing the comparison of cost of installing striated plywood with painted treatment and Welchboard with two coats of varnish, it was stated on August 11, 1950, that this was not necessary as the substitution had already been approved by the district office, the memorandum containing the pencil notation: "Welchboard, stained, was actually approved and was final action."[5]

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[96] Exhibit No. A–1.
[97] Exhibit No. A–2.
[98] Exhibit No. A–3.
[99] Exhibit No. A–4.
[1] Exhibit No. A–5.
[2] Exhibit No. A–6.
[3] Exhibit No. A–7.
[4] Exhibits Nos. A–8, A–9, and A–10.
[5] Exhibit No. A–11.

The contractor's statements that striated plywood could not be obtained in time for use on this project because of scarcity of supply and delayed deliveries and that the installation of Welchboard was slightly more expensive than striated plywood were apparently accepted by the district office at their face value as the records do not indicate, nor could any information be obtained verbally, that any attempt had been made to verify the statements of the contractor. Sources of supply in San Francisco and Seattle were contacted in November 1951 and March 1952 to ascertain whether there was a scarcity of supply and delayed deliveries of striated plywood during the last 6 months of 1950, but definite information on these two points could not be obtained. Although it was generally admitted that the supply and delivery situation was somewhat tight during the first three quarters of 1950, none of the sources contacted would definitely state that the quantities needed for contracts Nos. DA–48 and DA–61 were unobtainable during the last 6 months of 1950 or that deliveries could not be made within a reasonable time.

In the meantime construction was underway and the contractor commenced installing the Welchboard, applying only one coat of stain or paint. By memorandum dated October 16, 1950, the resident engineer was notified by the district office that one coat of paint was not producing a satisfactory covering for the Welchboard and that since the substitution was for the contractor's convenience a satisfactory painting finish was to be expected.[6] It was also stated that a sample of a two-coat paint job was satisfactory to the Government but that no addition to the contract price for this two-coat paint job would be acceptable to the district office.

The records did not disclose whether this matter had been reported to the contractor; however, the contractor continued to apply only one coat of paint to the Welchboard, and on April 10, 1951, nearly 6 months later, the acting resident engineer (Maj. John C. Mattina) notified the contractor that field investigations indicated the one coat of paint being applied at that time did not provide an adequate covering and requested that all Welchboard be given two coats of paint.[7] On June 16, 1951, the contractor, in answer to this letter, stated that district office representatives inspecting a sample installation of Linwood siding on the job site observed a sample of Welchboard and suggested that it be submitted as a substitute for striated plywood.[8] It was also stated that, upon being advised of the manufacturer's recommendation that Welchboard not be installed as an exterior surface without the application of at least three coats of paint or spar varnish, the district office contacted the manufacturer and determined that one coat of Rodda stain or a mixture of Rodda stain, turpentine, and linseed oil would be sufficient.[9] It was then stated that the manufacturer claimed the surface checking had no ill effect on the Welchboard in any way and that it was no more serious than such a condition in any other siding or exterior woods.

The checking referred to by the contractor actually consists of ruptures and cracks in the exterior surface of the Welchboard which in many cases extend the entire length of the 8-foot panels. Although the manufacturer's claim that the checking would not affect the strength and durability of Welchboard is not presently subject to verification as the Welchboard has not been exposed to the weather for a sufficient length of time to prove this claim, the checking impairs the physical appearance of the buildings and makes them poor and unattractive looking.

The contractor's letter of June 16, 1951, was forwarded by the resident engineer to the district office on June 20, 1951, and he recommended that action be taken against the manufacturer of Welchboard because it was selected for use and painted in accordance with representations of the manufacturer.[10] There is no further correspondence pertaining to Welchboard in the files for contract No. DA–48 (Patti-MacDonald) in either the resident engineer's office or the district office.

Contract No. DA–61

Contract No. DA–61 (Boespflug-Birch) for the construction of 33 eight-family quarters was awarded on June 30, 1950, about one and a half months after contract No. DA–48. The plans and specifications made a part of contract DA–61 were the same as those for contract No. DA–48, which required that three-eighths-

[6] Exhibit No. A–12.
[7] Exhibit No. A–13.
[8] Exhibit No. A–14.
[9] Exhibit No. A–6.
[10] Exhibit No. A–15.

inch striated plywood be used as an exterior surface on the areas not covered by cement-asbestos board siding.

Fair-cost estimates prepared by the estimates section of the district office prior to advertising for bids (May 22, 1950) disclosed that the exterior area of each building to be covered by striated plywood was the same as that for contract No. DA–48, approximately 4,400 square feet, or a total of 145,200 square feet for 33 buildings. The cost per square foot was estimated at 18 cents for material, 14 cents for labor, and 1 cent for freight, or a total unit cost at job site of 33 cents. The cost of installing striated plywood on each building was estimated at $1,452, or a total of $47,916 for 33 buildings.

Only two letters on this subject were in the files for contract No. DA–61. In a letter dated August 9, 1950, to the resident engineer, the contractor stated that striated plywood could not be obtained from any available source and requested approval for the substitution of Welchboard for striated plywood.[11] Since Welchboard had been approved for use on contract DA–48 on July 31, 1950,[12] the resident engineer notified Boespflug-Birch on August 10, 1950, that the substitution was approved and that there would be no extension of time or change in contract price as a result of this substitution.[13]

The Welchboard installed on the buildings constructed under contract No. DA–61 is starting to rupture and crack, but at present the damage is not as serious as it is on the buildings constructed under contract No. DA–48 because the Welchboard has not been exposed to the weather for as long a period of time. One coat of paint on the Welchboard has proven to be just as unsatisfactory on contract No. DA–61 as it was on contract No. DA–48.

The condition of Welchboard installed on buildings constructed under contracts Nos. DA–48 and DA–61 was reported to the resident engineer by the zone engineer on June 27, 1951, and attached to the report was a schedule showing the number and length of cracks in Welchboard panels on each building constructed under contract No. DA–48.[14] The zone engineer stated in the report that many panels on the sunny side of the buildings, besides cracking, had a tendency to curl and that sometimes the curling was sufficient to draw the nails. Physical inspections of some buildings made at various times during July, August, and September 1951, disclosed the same damage condition of the Welchboard as reported by the zone engineer.

The substitution of Welchboard for striated plywood on contracts Nos. DA–48 and DA–61 was discussed informally during the investigation with the district engineer, assistant district engineer, resident engineer, chiefs of the construction and engineering divisions, and others. All agreed that Welchboard was proving to be unsatisfactory as an exterior surface, but they were of the opinion that the contractor could not be held responsible for this because (1) the proposal for this substitution and its approval by the district office were made in good faith, (2) the approval by the district office was based on the manufacturer's representations that Welchboard had proved satisfactory for exterior use and that one coat of Rodda stain or mixture of Rodda stain, turpentine, and linseed oil would provide adequate coverage, and (3) at the time of approval the latent defects in the Welchboard were not apparent. The question of difference in cost between Welchboard and striated plywood was also discussed, and it was the consensus of their opinions that the execution of a change order or an adjustment in the contract price was not required for this substitution as the cost of Welchboard would be as much as, if not more than, the cost of striated plywood.

By General Accounting Office memorandum dated September 18, 1951, the substitution of Welchboard for striated plywood on contracts Nos. DA–48 and DA–61 was formally brought to the attention of the district engineer and he was requested to furnish any information available concerning this substitution as well as the action he intended to take on this matter.[15] This memorandum was answered by the district engineer by letter dated November 15, 1951,[16] and the part applicable to this substitution is quoted below:

"1. Substitution of Welchboard for Striated Plywood (DA–48 and 61)

"Contractors on both jobs purchased Welchboard after the approval by this office. They have been instructed to contact the manufacturers of Welchboard in furtherance of the apparent inadequacies of their product. Further discussions will be had when the manufacturer's reply is available."

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[11] Exhibit No. A–16.
[12] Exhibit No. A–9.
[13] Exhibit No. A–17.
[14] Exhibit No. A–18.
[15] Exhibit No. E–1.
[16] Exhibit No. E–2, sheet 2.

Attached to the letter of November 15, 1951, was a copy of a letter dated October 29, 1951, from the district engineer to Patti-MacDonald,[37] the pertinent part of which is quoted as follows:

"*Specification Division No. 9.040*

"(7) Unsatisfactory condition of Welchboard after exposure to weather. Cracks and warping.

"*Action to be taken*

"Contractor to submit to the contracting officer, in writing, the explanation of the supplier of Welchboard, West Coast Plywood Co., as to the cause of this condition, and recommendations for correction. The contractor will also submit a breakdown of costs for the substitution of this board to determine whether the Government is entitled to a credit."

Also attached to the letter of November 15, 1951, was a memorandum dated November 3, 1951, in which the fair-cost-estimates section estimated that a credit of $2,805 was due the Government for the substitution of Welchboard for striated plywood on contract No DA–48.[38]

As shown by this computation, the difference in cost between Welchboard and striated plywood amounted to $55 a building ($835 minus $780), and by applying this rate to the 33 buildings constructed under contract No. DA–61, a credit of $1,815 would be due the Government on that contract.

Striated plywood is being installed on the buildings under construction under contracts Nos. DA–135 and DA–193 (both Patti-MacDonald), and the physical appearance of these buildings is far superior to those on which Welchboard was used. It is too early to determine whether striated plywood will develop the same defects as Welchboard upon exposure to the weather, as it has only been in place since the latter part of August 1951.

GENERAL DEFICIENCIES (CONTRACT NO. DA–48)

Construction work under contract No. DA–48 (Patti-MacDonald) was started on June 1, 1950, approximately 3 weeks after the contract was awarded on May 11, 1950. Until early April 1951, after construction had been in progress for about 9 months, deficiencies reported by inspectors attached to the resident engineer's office seemed normal for a construction project of this type and size. Review of the inspectors' daily reports on file in the resident engineer's office disclosed only the following deficiencies during this 9-month period:

Date of report	Inspector	Deficiencies reported
July 22, 1950	Edgar Smith	Steel omitted from footing forms.
Aug. 1, 1950	do	Concrete very poor quality.
Oct. 2, 1950	W. L. Weakley	Waste drains on bathtubs without vents.
Oct. 10, 1950	G. W. Bodeen	Exterior plywood not installed correctly.
Oct. 12, 1950	C. F. Brewer	Roofing improperly installed.
Oct. 13, 1950	do	Second floor joists not resting on plates.
Do	Edgar Smith	Roofs leaking.
Nov. 9, 1950	Leo Kareen	Concrete walls cracking; exterior plywood blistering.
Jan. 15, 1951	do	Poor workmanship in joint fillings.
Mar. 7, 1951	W. H. Donovan	Crown molding and door and window trim fitted poorly and not filled and sanded before painting; doors warped and poorly fitted; walls not sanded before painting, etc.
Mar. 14, 1951	Edgar Smith	Sheetrock application poor.
Mar. 16, 1951	W. H. Donovan	Do.
Mar. 19, 1951	Edgar Smith	Inferior hardwood flooring.
Mar. 20, 1951	do	Do.
Apr. 12, 1951	George Bournas	Roofs leaking; sloppy spackling.

Inspectors' daily reports generally contained only information of a statistical nature such as weather conditions, contractor's personnel by classification and hours worked, equipment and hours in use, and a brief description of the work performed. When deficiencies were occasionally reported, subsequent reports did not disclose whether the contractor had been required to correct the deficiencies. As a whole, inspectors' daily reports were of little value in determining the status of construction during this 9-month period, nor was there any information in the records of the office of the resident engineer or the district office indicating other than normal construction progress during this period.

[37] Exhibit No. E–2, sheet 14
[38] Exhibit No. E–2, sheets 16 and 21.

On April 12, 1951, however, Donald F. Gordon, who had been hired a few days before as mechanical inspector, submitted a hand-written report (on file in the zone engineer's office) in which he had noted some serious deficiencies in the plumbing installation on contract No. DA–48.[19] In the report this inspector stated that: "In general the plumbing installations in this contract are the worst I have ever seen on group house construction anywhere." Another report by this inspector covering an inspection made during the period April 14–18, 1951,[20] is quoted in pertinent part as follows:

> "The waste and vent system that has been and is still being installed in these housing units is substandard in lay-out and installation. As completed it allows sewer gas penetration to habitable areas of the apartments. * * *
>
> "The plumbing installation is characterized by its absence of venting and clean-outs, undersized piping, and the use of unsanitary fittings. The notable absence of any kind of approved strapping or hangers, as a matter of fact every conceivable prohibited short cut has been applied to this work.
>
> "With hardly a single exception, the contractor has failed to comply with either the plans or specifications prepared by the Government for the job, or any accepted practices in the plumbing and heating industry in the Western Hemisphere.
>
> "The manner and method of cutting the wooden structure of the building for pipe installation is unheard of in the building industry today. The practices indulged in are not tolerated by any building inspector in the country. The structural strength of the buildings has been seriously impaired.
>
> "By conservative tabulation and estimate this inspector concludes that the contractor has obtained for himself a sum in excess of $75,000 by using substandard and inferior materials in place of those specified by the Government. By the omission of minimum vents, by hurried and irresponsible work, and the use of long-prohibited, unsafe, and unsanitary methods and materials.
>
> "The Government is being left with a mechanical installation (plumbing and heating) which is substandard and inferior in every degree. A job that would not be permitted or tolerated anywhere under any circumstances. A job that will involve tremendous expense to keep up and maintain within a relatively short time."

This report also included a list of 35 items covering specific deficiencies principally in the plumbing installation.

At the time these reports were submitted the resident engineer, James W. Huston, was on annual leave and his assistant, John C. Mattina, major, Corps of Engineers, United States Army, was acting resident engineer. Although not shown by the records, these reports were brought to the attention of the district office, and an inspection team composed of Mr. Gordon; John H. Coleman, captain, Corps of Engineers, United States Army; and John J. Loughlin of the Technical Control Section, Construction Division, district engineer, the latter two being district office representatives, was appointed to recheck the deficiencies originally reported by Mr. Gordon. On April 19 and 20, 1951, an inspection of buildings Nos. 5354 and 5493 was made by this team and a formal report was submitted covering deficiencies found in the plumbing and heating installation in these buildings.[21] This report contained the following opening statement:

> "* * * The following noted deficiencies are not only specific for building No. 5354 (completion status 95 percent) and building No. 5493 (completion status approximately 25 percent), but are also typical for the entire project."

This inspection not only confirmed the deficiencies as originally reported by Mr. Gordon but also disclosed other deficiencies. Some minor deficiencies were listed in this report; however, many of them were of a serious nature, particularly those involving inferior materials, poor workmanship, and other deviations from the contract plans and specifications. The report was concluded with the following statement:

> "Substitution of inferior materials, omission of specified materials, use of prohibited materials and deliberate deviations from contract plans and

[19] Exhibit No. E–10.
[20] Exhibit No. E–3, sheets 6 to 11, inclusive.
[21] Exhibit No. E–3, sheets 15 to 24, inclusive.

specifications has decreased the contractor's cost approximately $125,000. Of this sum $50,000 would be savings in material and $75,000 decreased labor costs."

To illustrate some of the more serious deficiencies, Mr. Gordon had the staff photographer of the resident engineer's office take 40 photographs of the plumbing and heating installation in buildings Nos. 5354, 5359, 5493, 5495, 5496, and 5497.[22] Descriptions of the deficiencies illustrated by these photographs were noted on the reverse side of 26 photographs,[23] but this information was not shown on the remaining 14 photographs. Scrutiny of these photographs clearly shows many of the more serious deficiencies.

The report (undated) of the mechanical inspection made on April 19 and 20, 1951, by Mr. Gordon, Captain Coleman, and Mr. Loughlin was turned over to the resident engineer (Mr. Huston) on April 23, 1951, the day (Monday) he apparently returned from annual leave.[24] The records do not disclose the manner in which this report was transmitted to the contractor (Patti-MacDonald); however, the next day, April 24, 1951, the contractor stated in a letter that the list of deficiencies given him under date of April 23, 1951, was attached and included his answers to each item.[25] In this letter the contractor pointed out that his plumbing and heating subcontractor, C. A. Hooper Co., prepared and submitted shop drawings and folders and brochures of plumbing and heating materials and equipment which were approved by the district office. The contractor further stated that many of the discrepancies were listed as such because of failure of district office representatives to make sufficient research into some of the items and indicated that the plumbing and heating installation complied with the shop drawings, folders, and brochures approved by the district office; however, the contractor did not mention whether the plumbing and heating installation was in accordance with contract plans and specifications.

A review of the contractor's answers disclosed that (1) some deficiencies, mostly those of a minor nature, were to be corrected; (2) most of the more serious deficiencies, particularly those involving deviations from contract plans and specifications, were not considered as such because workmanship, materials, and equipment were in accordance with approved shop drawings, folders, and brochures; (3) certain items listed as deficiencies were not required, called for, or specified by contract plans and specifications or applicable Federal specifications; (4) most deficiencies representing inferior workmanship resulted from plumbers' and steam fitters' strikes during preliminary and intermediate stages of construction or were caused by incompetent help; (5) some items noted as deficiencies were approved by inspectors formerly assigned to contract No. DA–48; and (6) other deficiencies did not require correction because the plumbing and heating system would function satisfactorily as installed or for various other reasons.

The contractor's answers were hurriedly prepared; he received the inspection report on April 23 and answered it on April 24; so the question arises as to whether he had sufficient time to thoroughly check the deficiencies. It would seem that the district engineer was not entirely satisfied with the contractor's answers to the deficiencies because on April 26, 1951, he instructed the assistant ditsrict engineer, Lieutenant Colonel Dorland, to make an investigation of this matter. On the same day he temporarily relieved Mr. Huston as resident engineer and appointed Lieutenant Colonel Dorland as acting resident engineer during the investigation.

On April 28, 1951, Lieutenant Colonel Dorland verbally instructed Gary D. King, zone engineer, who was hired sometime in March 1951, and who was in charge of inspections in the contsruction zone which included contract No. DA–48, to submit a report setting forth the events leading up to the mechanical inspection made on April 19 and 20, 1951, by Mr. Gordon, Captain Coleman, and Mr. Loughlin. The zone engineer submitted his report on May 1, 1951, and it is quoted in pertinent part below:[26]

"1. During the week of April 1, 1951, while making a cursory inspection of new construction at Fort Richardson my interests were aroused beyond normal concern upon discovery of a considerable amount of poor workmanship, repetitive deficiencies and deviations from plans and specifications, prevalent on contract DA95–507–eng–48. Although the condition appeared

[22] Photographs Nos. 1 to 40, inclusive.
[23] Photographs Nos. 1 to 26, inclusive.
[24] Exhibit No. E–3, sheet 2, item No. 6.
[25] Exhibit No. E–4.
[26] Exhibit No. E–3.

somewhat general throughout the buildings, from concrete to roofing, the discrepancies found to be most outstanding were the plumbing and heating installations and the virtual 'butchering' of the wood structural framework to effect the installations. Moreover, it was easily discernible that the class of workmanship and some materials used were substandard and not in keeping with normal good practice. Further investigation revealed this condition to be general throughout all buildings being constructed on the foregoing contract.

* * * * * * *

"3. Subsequently, on April 9, 10, and 11, the area engineer and inspectors assigned on the foregoing contract were questioned in the field, individually and collectively, relative to the various discrepancies and deficiencies found. Although several expressed some weak excuse, the area engineer and principal inspectors insisted the inspection staff was rendered impotent by repeated reversals of their findings by the resident engineer over an extended period dating back almost to the start of construction. Quoted statement—'Why try to correct these things with the contractor when we get no backing?' 'We've been beaten down repeatedly by the contractor's back-door entry to the residency and approved shop drawings permitting these installations.' From other statements made the writer has reason to believe these inspectors have figuratively had the 'feet cut out from under them' on numerous occasions.

"4. On April 12, Frank Yarnot, mechanical inspector (subsequently resigned—by request), was directed to make a detailed report of mechanical deficiencies on this contract. (See exhibits A and B.) Mr. Donald F. Gordon, mechanical inspector, assigned with Mr. Yarnot, reported verbally his findings with regard to plumbing and heating deficiencies and that because of disagreement with Mr. Yarnot he was threatened with transfer for 'seeing too much.' Whereupon Mr. Gordon was directed by me to make a detailed inspection of all plumbing and heating on the foregoing contract and report his findings by Wednesday, April 18. (See exhibit C.)

* * * * * * *

"Observations

"a. From further observations of the writer it is apparent that inspection, and supervision of such inspections, for a period extending back to the previous construction season, has been extremely loose. Moreover, the contractor being cognizant of the conditions, had taken fully every advantage presented by these shortcomings.

"b. Instructions to area engineers and field inspectors with regard to legality of shop drawings directly or indirectly in conflict with specifications has been lacking. Most inspectors believe approval of shop drawings supersedes that portion of specifications pertaining thereto."

Lieutenant Colonel Dorland stated that the charges made by inspectors as mentioned in the zone engineer's report were investigated but that adequate proof could not be furnished by inspectors to substantiate their charges. He also stated that upon discussing these charges with various inspectors they were unable to cite any specific instances of their findings being reversed, of receiving no backing, or of the contractor's back-door access to the residency. Lieutenant Colonel Dorland further said that statements made by inspectors were of a general nature and so vague that he believed their charges were based on hearsay, rumor, and opinion rather than on fact.

As part of his investigation, Lieutenant Colonel Dorland met with the resident engineer, zone engineer, inspectors, and contractor's representatives and discussed the deficiencies. Then on May 3, 1951, in a letter to the contractor, he summarized the agreements reached as a result of these discussions and instructed the contractor as to the action to be taken to correct the deficiencies.[27] In this letter the deficiencies were divided into four main categories as follows:

"A. Materials and fixtures not meeting specifications i. e., item 34 of list of deficiencies submitted by resident engineer.

"B. Workmandship of installation not in accordance with specifications or to an acceptable standard i. e., item 1.

"C. Failure to perform certain work required by specifications and/or

[27] Exhibit No. E–5.

contract drawings, i. e., no insulation on roof drain piping as required by paragraph M1.27–A–1 of the specifications.

"D. Methods of installation approved on shop drawings but not in accordance with specification, or contract drawings, i. e., item 32."

According to this letter it would seem that the corrective action required of the contractor covered most of the deficiencies listed in the inspection report; however, one important point was overlooked, and that was the credit or refund due to the Government for savings made by the contractor in costs of material, labor, and freight as the result of substitutions, omissions, and deletions of material and workmanship for which corrective action was not being required by the district office. The largest part of these savings was effected by means of contractor's shop drawings which deviated from or changed the contract plans and specifications to a considerable extent and which were approved by the district office without requiring the contractor to submit proposals for change orders amending the lump-sum contract price.[28]

Lieutenant Colonel Dorland's letter of May 3, 1951, was answered by the contractor on May 7, 1951.[29] The contractor answered each specific item listed as a deficiency in Lieutenant Colonel Dorland's letter of May 3, 1951, but did not mention anything about other similar deficiencies listed in the inspection report. It is apparent that the contractor assumed these latter items had been satisfactorily disposed of either by his original answers made on April 24, 1951,[30] or during conferences and discussions held subsequent to that date.

On May 10, 1951, Lieutenant Colonel Dorland completed his investigation and Mr. Huston was reinstated as resident engineer. Lieutenant Colonel Dorland stated that in lieu of submitting a formal report the matters covered in his investigation were reported orally to the district engineer. A digest of his oral report[31] indicates that his investigation consisted of assuming responsibility as acting resident engineer, meeting with contractor's personnel, resident engineer, zone engineer, and inspectors to discuss the alleged deficiencies, and writing a letter dated May 3, 1951,[32] instructing the contractor as to the action to be taken to correct the deficiencies.

Under date of May 22, 1951, Lieutenant Colonel Dorland forwarded the contractor's letter of May 7, 1951, to the resident engineer and attached a draft of a suggested reply to the contractor.[33] On the same date a letter, the same as to form and content as the suggested draft, was sent to the contractor by the resident engineer which is quoted in pertinent part as follows:[34]

"Confirming agreements arrived at on the job site meeting subsequent to the letter from this office dated May 3, 1951, and in response to your letter, the following action will be taken:

"*Category 'A':* In accordance with your letter of May 7, no action by this office is required.

"*Category 'B':* Item 1 (a) your letter. It is requested that galvanized bushings in the copper water line be replaced as directed.

"*Category 'C':* Item 1 (c) your letter. Paragraph M2.26A, contract specifications, refers to installations through concrete walls only. Since a pipe riser was specifically required for the bathroom line installations it is obvious that concrete wall use only could not have been intended. It is therefore directed that you install the pipe riser as instructed in letter of May 3, 1951.

"*Category 'D':* Your item 1 (b). In this contract only, vent may be omitted from bathroom drain lines; savings resulting from not installing this vent will be the subject of future negotiations.

"Your item 1 (c)—It is requested that clean-outs be installed as directed.

"Your item 1 (d)—Stop valves will be installed as directed. Verbal approval of installation of stop-and-waste valves in lieu of stop valves is hereby approved and made of record.

"Your item 1 (e)—Horizontal waste lines in the basement need not have any additional clean-outs installed.

"Your item 1 (f)—Floor drains are considered satisfactory.

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[28] See section "Substitutions, Omissions, and Deletions in Plumbing Waste and Vent Systems," p. — to —, inclusive.
[29] Exhibit No. E–6.
[30] Exhibit No. E–4.
[31] Exhibit No. E–2, sheet 26.
[32] Exhibit No. E–5.
[33] Exhibit No. E–6, sheet 8.
[34] Exhibit No. E–7.

"Your item 1 (g)—Roof vent as installed is considered satisfactory.
"Your item 1 (h)—Your plan of action is considered satisfactory.
"Your item 1 (i)—Action deferred pending report from the supplier.
"Your item 1 (m)—It is understood that correct valves will be supplied and installed."

In a letter dated May 22, 1951,[35] C. A. Hooper Co., plumbing and heating subcontractor for Patti-MacDonald on contract No. DA–48, offered for consideration of the district engineer credits of 25 cents each for bathtub strainers, sink trap clean-outs, and water-closet vacuum breakers.

In the meantime Mr. Gordon in a report dated May 4, 1951,[36] stated that:

"1. There have been no requests for inspection on plumbing or heating on this contract this week. Work, however, is proceeding.
"Walls are being stripped and downspout piping covered, and then the wall being put back without any inspection of the covering job as to whether it meets the specifications in any way.
"The only downspouts which this inspector observed had been frozen and leaked very badly. None of these downspouts show any evidence of having been tested and found watertight."

On May 8, 1951 (report dated in error as April 8, 1951), Mr. Gordon and a new inspector, Sam Smith, reported deficiencies in the heating installation in building No. 48 and stated that "the general character of the work was not up to plans and specifications."[37] They also inspected the covering of downspouts in building No. 41, and reported essentially the same condition as that mentioned in Mr. Gordon's report of May 4, 1951, quoted in part above.

In his daily report dated May 22, 1951, covering an inspection of building No. 44, Mr. Gordon made the following observation under the remarks section:

"There is no appreciable change in the type of work now being performed on the plumbing and heating under this contract and what was being done 2 months ago, completely at variance with the plans and specifications. As a result the standards all through the area are dropping. Our approval or disapproval of work seems to have little or no effect."

In a report dated June 2, 1951,[38] covering final inspection made by Lieutenant Maier and Inspectors Gordon, Smith, and Anderson of the first seven buildings constructed under contract No. DA–48 which were being turned over to the district engineer for useful occupancy, Mr. Gordon listed a number of deficiencies and stated that:

"9. From a plumbing and heating standpoint the buildings are unfit for occupancy. Deficiencies have been noted for 2 months, and most of them are still there. Unvented fixture traps make possible the passage of sewer gases into all areas of apartments. Unsanitary connections insure the spread of any communicable disease from one apartment to the other. A hot-water boiler weighing over a ton in the basement of each unit is dangerously and unsafely supported 3 feet off the floor and manholes in this tank are loose. There are many other faults to be noted and conclusions to be drawn from them in a study of the reports."

Notwithstanding the fact that subsequent reports turned in by inspectors indicated that most of the deficiencies originally reported still existed, the letter of May 22, 1951,[39] seemed to be the final action taken by the district office as of the date this investigation was initiated. Prior to this investigation, the records of the district office and the resident engineer's office did not indicate whether this matter was followed up (1) to determne whether the corrections promised by the contractor or required by the district office were being made, and (2) to recover the amounts due the Government for savings in costs of material, labor, and freight resulting from deviations (substitutions, omissions, and deletions) from the contract plans and specifications in those cases where correction of the deficiencies was not required by the district office.

During the period from May 18 to September 10, 1951, all 51 buildings constructed under contract No. DA–48 were conditionally accepted by the district engineer for useful occupancy and turned over to the post engineer for assign-

[35] Exhibit No. E–8.
[36] Exhibit No. E–11.
[37] Exhibit No. E–12.
[38] Exhibit No. E–13.
[39] Exhibit No. E–7.

ment to military personnel and their dependents. By the latter date all buildings had been fully occupied by military personnel and their dependents. Although the buildings had been accepted for useful occupancy, the contractor was not relieved of his responsibility for completing the work in accordance with the contract plans and specifications.

During the latter part of July and the month of August 1951, physical inspections of several buildings clearly indicated that the contractor failed to correct many of the more serious deficiencies, including some that he had promised to correct and others that he was required by the district office to correct. The full extent of corrections made or not made by the contractor was not definitely ascertainable because a large part of the plumbing and heating installation had been concealed by interior-finish work.

On September 7, 1951, representatives of the General Accounting Office brought this matter to the attention of the district engineer, Colonel Seeman, and he was requested to have an inspection made of several buildings constructed under contract No. DA–48 to determine the current status of he deficiencies listed in the mechanical inspection report of April 19–20, 1951.[40] This inspection was made on September 11, 1951, in the presence of General Accounting Office representatives.

This inspection confirmed the fact that many deficiencies, particularly those involving substitutions, omissions, deletions, and other deviations from the contract plans and specifications, had not been corrected by the contractor. In some cases corrections promised by the contractor and in others corrections required by the district office had not been made. In a memorandum dated September 13, 1951,[41] Captain Coleman set forth his observations as to the deficiencies that still existed in the plumbing and heating installation on contract No. DA–48 as of the date of this inspection.

The status of the deficiencies in the plumbing and heating installation on contract No. DA–48 based on the inspection of September 11, 1951, was also shown in a report dated September 14, 1951, submitted by the zone engineer to the resident engineer.[42]

This matter was brought to the attention of the district engineer, Colonel Seeman, by General Accounting Office memorandum dated September 18, 1951,[43] and his answer by letter dated November 15, 1951,[44] is quoted in pertinent part below:

> "In order to bring the information up to date, consideration has been given to the most recent activities on contract 48. Due to the critical need for family housing, all the units under this contract have been turned over to the commanding officer, Fort Richardson, for useful occupancy, although the contractor is still actively engaged in remedying all discrepancies and deficiencies existing in the 408 units.
>
> "* * * Continuing the attention these contracts for housing have required, a district team of five members made another detailed inspection of 100 of the 408 units. Their findings were made the basis of a discussion held on October 12, 1951, between Messrs. Lefler, Gall, and Wilcox of the Patti-MacDonald Construction Co., and Messrs. Gilpin, Dorland, Huston, King, Carey, and Coleman of the district.
>
> "Similar to the inspections and representations of last spring, a letter was sent to the contractor, the Patti-MacDonald Co., on October 29, confirming the conference discussions and citing in detail the shortages and discrepancies still existing under contract 48, and directing action to be taken in each case. A copy of this letter is attached as exhibit A. The action to be taken by the contractor can be divided into two classes:
>
> "a. Discrepancies or deficiencies which, while not in accord with the plans and/or specifications, are fundamentally sound and will result in no serious functional weakness.
>
> "*Remedy.*—The contractor will credit to the Government a sum equivalent to the savings accruing to the contractor due to this discrepancy. Such an equitable amount will be arrived at by agreement between the contracting officer and the contractor.
>
> "b. Deficiencies in material furnished or in workmanship which produced unsatisfactory work.

[40] Exhibit No. E–3, sheets 15 to 24, inclusive.
[41] Exhibit No. E–2.
[42] Exhibit No. E–9.
[43] Exhibit No. E–1.
[44] Exhibit No. E–2.

"*Remedy.*—Replace the material or tear out and replace the work so that the result will conform with the plans and/or specifications.

"On October 15, as agreed in the conference of October 12 referred to above, the contractor started the work of rehabilitation with a gang of 12 men. The work to date has been satisfactory and, apparently, the contractor will increase the size of the gang to afford minimum inconvenience to families in buildings already occupied. No final acceptance will be given until the work has been completed. Further in accordance with the terms of the contract, additional Government costs at the rate of $235.25 per day are being assessed against the contractor until the date of final acceptance.

"Figures have been compiled in order to negotiate with the contractor on the credit due the Government; our estimate for this credit amounts to $101,055 (see exhibit C)."

As shown in Colonel Seeman's letter to the contractor dated October 29, 1951,[45] other deficiencies in addition to those in the plumbing and heating installation were disclosed by the inspection made by the five-man district team of 100 of the 408 units. In this letter Colonel Seeman instructed the contractor as to the action to be taken on these deficiencies and stated that "there will be no final acceptance or relaxation of the damage clause until the terms of the contract, with regard to the plans and specifications, have been met."

Attached as exhibit C to Colonel Seeman's letter of November 15, 1951, was a memorandum dated November 3, 1951,[46] containing the details of the estimated credit of $101,055 due the Government representing savings in costs of material, labor, and freight accruing to the contractor as a result of substitutions, omissions, deletions, and other deviations from the contract plans and specifications which the contractor is not being required to correct. This estimated credit consists of the following items:

Bathtubs not in accordance with specifications	[1] $8,109
Omission of vents in bathtub drain lines	[2] 5,712
Omission of clean-outs at ends of horizontal waste lines	[2] 2,193
Omission of cold-water distributing pipe in hot-water storage tanks	204
Substitution of ¾-inch in lieu of 1-inch relief valves specified for hot-water storage tanks	102
Medicine cabinets not in accordance with specifications	1,683
Substitution of ¼-inch in lieu of ⅜-inch compression stops and chrome supply tubing on hot- and cold-water lines	459
Omission of volume controls on shower heads	663
Omission of soap dishes on laundry trays	177
Substitution of cast iron in lieu of bronze clamping rings on roof drains	2,754
Omission of banding of lagging on hot- and cold-water soil, and drain lines	918
Plumbing piping not installed in accordance with contract plans and specifications	[2] 65,739
Omission of bucket traps on steam service lines entering buildings	9,537
Substitution of Welchboard for striated plywood	[3] 2,805
Total estimated credit	101,055

[1] See section "Bathtubs and Plumbing Fittings."
[2] See section "Substitutions, Omissions, and Deletions in Plumbing Waste and Vent System."
[3] See section "Substitution of Welchboard for Striated Plywood."

As mentioned in Colonel Seeman's letter of November 15, 1951, this estimated credit of $101,055 will serve as the basis for negotiation with the contractor to determine the final amount due the Government. The final amount to be recovered from the contractor by adjustment of the lump-sum contract price, direct refund, or otherwise will be subject to further verification.

TABLE OF APPENDIXES

APPENDIX A

Construction contract No. DA–95–597–eng–48, dated May 11, 1950, with S. Patti Construction Co. and MacDonald Construction Co., 1340 Admiral Boulevard, Kansas City, Mo., for 51 eight-family quarters, amount: $4,812,503.

Modification No. 1, change order dated July 20, 1950.

[45] Exhibit No. E–2, sheets 7 to 14, inclusive.
[46] Exhibits No. E–2, sheets 16 to 21, inclusive.

Modification No. 2, change order dated August 1, 1950.
Modification No. 3, change order dated November 6, 1950.
Modification No. 4, change order dated January 2, 1951.
Modification No. 5, change order dated February 16, 1951
Modification No. 6, change order dated May 12, 1951.
Modification No. 7, rental agreement No. 1, dated March 1, 1951, for rental of Government-owned equipment.
Specifications for eight-family quarters, parts I, II, III, IV:
Addendum No. 1 to specifications dated April 14, 1950.
Addendum No. 2 to specifications dated April 22, 1950.
Invitation for bids dated March 20, 1950.
Abstract of bids dated 2 p. m., April 27, 1950.
Contract plans:
Drawing No. 16-06-28, sheet 1.
Drawing No. 25-01-06, cover and sheets 1 to 9, inclusive.
Contract plans, revised: Drawing No. 25-01-06, sheets 1, 2, 4, 5, 6, 7, 8, and 9.
Contractor's shop drawings:
Drawing No. 5032, May 22, 1950.
Drawing No. 5032-1, May 22, 1950.
Drawing No. 5032-2, May 22, 1950.
Drawing No. 5035, June 7, 1950.
Schematic, waste and vent piping.
Schematic, water piping.

APPENDIX B

Construction contract No. DA-95-507-eng-61, dated June 30, 1950, with J. C. Boespflug Construction Co. and S. Birch & Sons Construction Co., 1912 Fourth Avenue South, Seattle 4, Wash., for 33 eight-family quarters, amount: $3,175,500.
Modification No. 1, change order dated March 5, 1951.
Modification No. 2, change order dated May 25, 1951.
Letter change order dated June 30, 1950.
Specifications for eight-family quarters, parts I, II, III, IV:
Addendum No. 1 to specifications dated May 24, 1950.
Addendum No. 2 to specifications dated May 26, 1950.
Invitation for bids dated May 22, 1950.
Abstract of bids dated 2 p. m., June 6, 1950.
Contract plans: Drawing No. 25-01-08, cover and sheets 1 to 10, inclusive.
Contract plans, revised: Drawing No. 25-01-08, sheets 7, 9, and 10.
Contractor's shop drawings:
Proposed steam lay-out.
Proposed flash tanks.
Proposed hot-water tank stand.
Sleeving details for mechanical piping.
Underground soil and waste.
Waste and vent piping.

APPENDIX C

Construction contract No. DA-95-507-eng-135, dated January 4, 1951, with S. Patti Construction Co. and MacDonald Construction Co., 1340 Admiral Boulevard, Kansas City, Mo., for 38 eight-family quarters, amount: $4,042,329.
Modification No. 1, rental agreement No. 1, dated April 4, 1951, for rental of Government-owned equipment.
Specifications for eight-family quarters:
Addendum No. 1 to specifications dated November 14, 1950.
Addendum No. 2 to specifications dated November 20, 1950.
Addendum No. 3 to specifications dated November 27, 1950.
Addendum No. 4 to specifications dated December 1, 1950.
Invitation for bids dated November 10, 1950.
Abstract of bids dated 12 noon, December 14, 1950.
Contract plans:
Drawing No. 16-06-54, sheet 1.
Drawing No. 25-01-12, cover and sheets 1 to 9, inclusive.
Contract plans—revised:
Drawing No. 25-01-12, sheets 6a, 6b, 6c, 6d, 6e, 6f, 6g, 6h, and 6i.
Contractor's shop drawings:
Typical waste and vent stack, and hot and cold water risers, etc.
Drawing No. 5084-1, January 17, 1951.

Drawing No. 5084–2, January 17, 1951.
Drawing No. 5084–3, January 17, 1951.

APPENDIX D

Construction contract No. DA–95–507–eng–193, dated May 26, 1951, with S. Patti Construction Co. and MacDonald Construction Co., 1340 Admiral Boulevard, Kansas City, Mo., for 23 eight-family quarters; amount $2,709,400.
Modification No. 1, change order dated June 14, 1951.
Specifications for eight-family quarters.
Addendum No. 1 to specifications dated April 5, 1951.
Invitation for bids dated March 28, 1951.
Abstract of bids dated 3 p. m., April 17, 1951.
Contract plans:
Drawing No. 16–06–79, sheet 1.
Drawing No. 25–01–13, cover and sheets 1 to 9, inclusive.

APPENDIX E

Publications of National Bureau of Standards, United States Department of Commerce:
Recommended Minimum Requirements for Plumbing, Elimination of Waste Series, Report BH13, Report of Subcommittee on Plumbing of the Building Code Committee.
Plumbing Manual, Building Materials and Structures Report BMS66, Report of Subcommittee on Plumbing, Central Housing Committee on Research, Design, and Construction.
Stack Venting of Plumbing Fixtures, Building Materials and Structures Report BMS118.
Wet Venting of Plumbing Fixtures, Building Materials and Structures Report BMS119.
Field Inspectors' Check List for Building Construction, Building Materials, and Strutcures Report BMS81, Report of Subcommittee on Structure, Central Housing Committee on Research, Design, and Construction.

APPENDIX F

Position charts of the Alaska District, Corps of Engineers, Anchorage, Alaska, as of July 1, 1951.

APPENDIX G

Management Report, Alaska District, June 1951.

APPENDIX H

Contractor's brochure of plumbing fixtures and fittings, approved by resident engineer for contract No. DA–95–507–eng–48.

APPENDIX I

District engineer's memorandum dated August 14, 1951, and Corps of Engineers' directives covering evolution of eight-family NCO row-type housing design for fiscal year 1950 and 1951 programs.

APPENDIX J

Federal specifications:
No. WW–P–401, dated June 17, 1935, Pipe and Pipe Fittings; Soil, Cast-Iron. Amendment No. 3, dated July 18, 1951.
No. WW–P–541a, dated March 30, 1940, Plumbing Fixtures; (for) Land Use. Amendment No. 1, dated December 29, 1947.
No. WW–P–542, dated October 11, 1940, Plumbing Fixtures; (for) Land Use (Formed-Metal Plumbing Fixtures).
No. WW–P–542a, dated July 31, 1950, Plumbing Fixtures; (for) Land Use (Formed-Metal Plumbing Fixtures), superseding No. WW–P–542.

EXHIBIT 7

CORRESPONDENCE BETWEEN GENERAL ACCOUNTING OFFICE AND DISTRICT ENGINEER, ALASKA

OFFICE OF INVESTIGATIONS,
UNITED STATES GENERAL ACCOUNTING OFFICE,
September 18, 1951.

L. E. Seeman, colonel, Civil Engineer, United States Army, district engineer.
Carl J. Thoma, investigator, General Accounting Office.
Deficiencies—Contracts Nos. DA–95–507–eng–48, 61, 135, and 193.

In accordance with our verbal understanding as of this date, it will be appreciated if you will furnish me by means of a formal memorandum such information as you have available as well as the action which has been taken or is contemplated by you in connection with the following substitutions, omissions, deletions, etc., applicable to the afore-mentioned contracts:

1. Substitution of Welchboard for striated plywood (DA–48 and 61).
2. Omission of radiator valves from convectors (DA–48 and 61).
3. Installation of Allianceware bathtubs which do not meet the Federal specifications as called for in the contract specifications as well as the installation of plumbing fixures and fittings therefor which were manufactured or assembled by two or more manufacturers (DA–48 and 61). In connection with contracts Nos. DA–135 and 193, plumbing fixtures and fittings have not been installed as yet, however, refer to contractor's list of plumbing fixtures and fittings as approved by your office.
4. Substitutions, omissions, and deletions on waste and vent system (DA–48, 61, 135, and 193).
5. Substitution of test tees for clean-out wyes (DA–48 and 61 and in certain cases DA–135 and 193).
6. Substitution of hot and cold water chrome supply tubing of a smaller size than called for in the contract specifications (DA–48).
7. Omission of cut-off valves on the individual hot and cold water supply lines to each laundry tray, the installation being made on the branch lines serving two units in lieu thereof (DA–48).
8. Omission of cold water distributing pipe from hot water tank (DA–48 and 61).
9. Substitution of covering which appears to be of paper composition for the wool felt called for in Federal specifications HH–M–371a on the hot and cold water piping (DA–48, 61, 135, and 193).
10. General deficiencies other than the above-listed items disclosed as a result of the investigation conducted by Lieutenant Colonel Dorland in April 1951. In this connection, please furnish a copy of all original documents, reports, etc., submitted by Lieutenant Colonel Dorland to you as well as a digest of Lieutenant Colonel Dorland's verbal report to you with respect to this matter. This investigation pertains to contract No. DA–48 only.
11. Deficiencies not corrected by the contractor as disclosed by the inspection made by representatives of the district office and the residency accompanied by us (Reeves and Thoma) on Tuesday, September 11, 1951. In this connection, please refer to Captain Coleman's memorandum and the zone engineer's (G. D. King) report to the resident engineer prepared subsequent to the date of inspection. (This memorandum and report included deficiencies applicable to contract No. DA–48 only.)

In addition to the foregoing matters, we would appreciate an expression of your views as to the attitude of the contractors and subcontractors, the pay scale of journeymen in the various crafts, material and labor cost factors, personnel problems, difficulties encountered in construction which are peculiar to the Alaska area, and such other information which you consider to have an important bearing on the matters under investigation. These views need not be limited to the contracts covering the eight-family dwellings of the NCO type, but may include the construction program as a whole.

In connection with contracts Nos. DA–95–507–eng–48, 61, 135, and 193, it will be appreciated if you will furnish us with a complete set of the bid invitations and addenda thereto, contracts together with change orders and modifications thereto, original and revised plans, specifications, mechanical (plumbing only) shop drawings, as-built drawings if available, etc.

We would appreciate an answer to this memorandum before our departure from Anchorage, Alaska. However, in the event you are unable to do so, please forward it to me as follows:

Carl J. Thoma, Investigator
Office of Investigations
United States General Accounting Office
Room 2401
100 McAllister Street
San Francisco 2, Calif.

CARL J. THOMA, *Investigator.*

CORPS OF ENGINEERS,
UNITED STATES ARMY,
OFFICE OF THE DISTRICT ENGINEER,
ALASKA DISTRICT,
Anchorage, Alaska, November 15, 1951.

Mr. CARL J. THOMA,
General Accounting Office,
San Francisco 2, Calif.

DEAR MR. THOMA: With reference to your memorandum to the District Engineer, Alaska, dated September 18, 1951, on the subject of Deficiencies, contracts DA-95-507-eng-48-61, 135, and 193, the following information has been assembled.

In order to bring the information up to date, consideration has been given to the most recent activities on contract 48. Due to the critical need for family housing, all the units under this contract have been turned over to the commanding officer, Fort Richardson, for useful occupancy, although the contractor is still actively engaged in remedying all discrepancies and deficiencies existing in the 408 units.

You and Mr. Reeves inspected the work on September 11, 1951, in the company of representatives of the district office. Continuing the attention these contracts for housing have required, a district team of five members made another detailed inspection of 100 of the 408 units. Their findings were made the basis of a discussion held on October 12, 1951, between Messrs. Lefler, Gall, and Wilcox of the Patti-MacDonald Construction Co., and Messrs. Gilpin, Dorland, Huston, King, Carey, and Coleman of the district.

Similar to the inspections and representations of last spring a letter was sent to the contractor, the Patti-MacDonald Co., on October 29, confirming the conference discussions and citing in detail the shortages and discrepancies still existing under contract 48, and directing action to be taken in each case. A copy of this letter is attached as exhibit A. The action to be taken by the contractor can be divided into two classes:

(*a*) Discrepancies or deficiencies which, while not in accord with the plans and/or specifications, are fundamentally sound and will result in no serious functional weakness.

Remedy: The contractor will credit to the Government a sum equivalent to the savings accruing to the contractor due to this discrepancy. Such an equitable amount will be arrived at by agreement between the contracting officer and the contractor.

(b) Deficiencies in material furnished or in workmanship which produced unsatisfactory work.

Remedy: Replace the material or tear our and replace the work so that the result will conform with the plans and/or specifications.

On October 15, as agreed in the conference of October 12 referred to above, the contractor started the work of rehabilitation with a gang of 12 men. The work to date has been satisfactory and, apparently, the contractor will increase the size of the gang to afford minimum inconvenience to families in buildings already occupied. No final acceptance will be given until the work has been completed. Further in accordance with the terms of the contract, additional Government costs at the rate of $235.25 per day are being assessed against the contractor until the date of final acceptance.

Figures have been compiled in order to negotiate with the contractor on the credit due the Government; our estimate for this credit amounts to $101,055. (*See* Exhibit C.)

With regard to the deficiencies existing on contract 61, with the firm of Boespflug & Birch, complete and final check cannot be made of the buildings until installation of the main steam line permits full test, approximately December 1, 1951. A complete check on about 25 percent of the buildings was made by the inspection team from the District, and results are shown in exhibit B.

Referring to your memorandum of September 18, 1951, the following information is submitted on each of your subparagraphs quoted below:

"1. Substitution of Welchboard for striated plywood (DA–48 and 61)."

Contractors on both jobs purchased Welchboard after the approval by this office. They have been instructed to contact the manufacturers of Welchboard in furtherance of the apparent inadequacies of their product. Further discussions will be had when the manufacturer's reply is available.

"2. Omission of radiator valves from convectors (DA–48 and 61)."

All convector valves on DA–61 were installed originally, and for DA–48 have been delivered and are now being installed. Both contractors have given notice of appeal from the decision of the contracting officer as provided in the contracts.

"3. Installation of 'Allianceware' tubs which do not meet the Federal specifications, as well as the installation of fixtures and fittings therefor, which were manufactured by two or more manufacturers (DA–48 and DA–61). In connection with contracts Nos. DA–135 and 193, plumbing fixtures and fittings have not been installed as yet, however, refer to contractor's list of plumbing fixtures and fittings as approved by your office."

The contractor has been instructed to credit the Government with the difference in cost and freight between the tub furnished and that described in Federal Specification WW–P–542. However, the contractor asserts that there was an interim specification at the time the contract was signed and before the Federal Specification WW–P–542A went into effect on July 30, 1950. The validity of this claim is being investigated as no copy of this specification is available in this office. A representative of the Crane Co. has identified the Crane brochure as being the work of the Crane Co., and has stated that they "assume full responsibility for each and every part of such unit" either manufactured or assembled by them.

Under contracts DA–135 and 193, the time of completion has been extended to June 6, 1952, in the interest of the Government since utilities will not be available this year. Under contract 135, the contractor has been instructed to replace the bathtubs with tubs which are in accordance with the specifications. Material furnished and workmanship will be inspected for compliance with the plans and/or specifications before acceptance.

"4. Substitutions, omissions, and deletions on waste and vent system—DA–48, 61, 135, and 193."

On contract 48, see (10) page 6 of exhibit A. Where substitutions do not affect functioning of system, savings to the Government will be recovered; otherwise, replacement is being required.

"5. Substitution of 'test tees' for clean-out 'wyes'—DA–48, 161, and in * * *."

Credit to the Government will be required for the difference in cost, as installation will function satisfactorily.

"6. Substitution of hot and cold water chrome supply tubing of a smaller size than called for in the contract specifications for DA–48."

In this case, o. d. size was substituted for i. p. s. As the pipe is deemed adequate, contractor will credit Government with any savings.

"7. Omission of cut-off valves on the individual hot- and cold-water supply lines to each laundry tray, the installation being made on the branch lines serving two units in lieu thereof—DA–48."

Contractor has installed additional cut-off valves so that adequate provision for cutting off water service in each basement is now provided.

"8. Omission of cold-water distributing pipe from hot-water tank—DA–48 and 61."

This pipe is not essential for operation. Contractor will credit Government for savings involved.

"9. Substitution of covering which appears to be of paper composition for the wool felt called for in Federal Specifications HH–M–371d on the hot- and cold-water piping—DA–48, 61 * * *."

Investigation by the district laboratory has determined that the insulation is in accordance with the specifications.

"10. General deficiencies other than the above-listed items disclosed as a result of the investigation conducted by Lieutenant Colonel Dorland in April 1951. In this connection, please furnish copy of all original documents, reports, etc., submitted by Lieutenant Colonel Dorland to you, as well as a digest of Lieutenant Colonel Dorland's verbal report to you with respect to this matter."

See exhibit D, Lieutenant Colonel Dorland's letter to the Patti-MacDonald Construction Co., May 3, 1951, and exhibit E, digest of verbal report of Lieutenant Colonel Dorland to Colonel Seeman.

"11. Deficiencies not corrected by the contractor as disclosed by the representatives of the district office and the residency, accompanied by us (Reeves & Thoma) on Tuesday, September 11, 1951."

See exhibit F, Captain Coleman's memorandum, and exhibit G, Zone Engineer King's report.

The general experience of the Alaska district with the contractors and subcontractors engaged in work in Alaska has been most satisfactory. During the past year there have been 44 prime construction contractors and about 220 subcontractors actively engaged in work on 135 projects throughout the Territory of Alaska. Naturally, there were different types of individuals in connection with the various firms. The great majority of the projects were of such a quality of construction and of such magnitude, that only firms of substantial financial background could obtain proper bonding. With this high type of prime contractor, the subcontractors were of a similar quality.

However, with the eight-family housing construction, legislative limit on expenditure required the exercise of maximum austerity. The omission of varnish on the floors, the quality of paint used in all rooms except the bathroom, the use of one coat of stain on the plywood siding, the omission of any type of partition between kitchen and dining alcove, and the specifications in general all pointed to the fact that "the building will be designed to cost the absolute minimum consistent with sound construction practice" and "design will be limited only by the judgment of the architect-engineer as to what constitutes normal standards for family housing in the Anchorage and Fairbanks areas, both as to structural requirements and the quality of finish." There were 18 bidders on contract No. 48 and competition was very keen on what might be described as a "speculative type of construction." This, apparently, attracted a type of subcontractor accustomed to a cheaper grade of work, and the difficulties with the prosecution of the contract have been a natural result.

A number of factors exist which materially affect Alaska construction, and which differ in varying degrees from conditions within the continental United States. Among these factors are:

An overseas job
Climatic conditions in Alaska
Transportation difficulties both of men and materials
Loss of efficiency due to climatic conditions and lack of daylight in winter
Excess cost of materials over Stateside
Necessity for long-range planning due to lag in time for procurement of men and materials
Excessive cost of heat for structures during winter
Labor turn-over
Wage scales

All of the above factors are taken into consideration when the contractor submits his bid. Roughly speaking, the cost of construction in Alaska, in the vicinity of Anchorage, is about 2¼ times Seattle cost and that in the Fairbanks area, about 2½ times. Naturally, additional factors enter in special cases. The labor turn-over is about 80 percent annually. However, there is very little "swapping of jobs." The contractors have an agreement among themselves not to hire a man under contract to another contractor unless he has been laid off. Further, a main source of discontent on many jobs, the quality of feeding, has been eliminated almost entirely at the four principal centers of construction by the Government operating central messes under a camp service contractor. The turn-over, which appears excessive, is comparable with other overseas jobs under similar climatic conditions. Until 1951, considerable turbulence existed in the wage scales, but now that the pay scales have been stabilized and patterns established, it is believed that reasonable stability within the industry will result.

All of these factors have been relatively stabilized during the past 2 years and it is believed that rising costs of construction in Alaska will keep step with similar rises in costs within the continental United States. That these factors are clearly recognized and stabilized is shown by the fact that in several hundred million dollars of work, the Government estimate on lump-sum jobs averaged within 3 percent of the mean of the first three bids.

Documents in connection with contracts Nos. DA-95-507-eng-48, 61, 135, and 195 are of considerable volume and are being forwarded under separate cover marked "Exhibit H."

L. E. SEEMAN,
Colonel, Corps of Engineers, District Engineer.

24980—52——12

EXHIBIT A

OCTOBER 29, 1951.

Subject: Deficiencies, contract DA–95–507–eng–48.

PATTI-MACDONALD CONSTRUCTION CO.,
Station No. 1, Anchorage, Alaska.

GENTLEMEN: Reference is made to conference between representatives of the district engineer, Messrs. Gilpin, Lieutenant Colonel Dorland, Huston, King, Captain Coleman, and Carey, and those of Patti-MacDonald Construction Co., Messrs. Lefler, Gall, and Wilcox, on Friday, October 12, 1951.

The matter under discussion was the action taken by the contractor to correct the deficiencies as noted in a communication to Patti-MacDonald Construction Co., from the resident engineer, Fort Richardson, dated May 3, 1951. These items pertained, for the most part, to plumbing and heating. Recently a spot-check inspection was undertaken on approximately 25 percent of the 408 units under contract DA–95–507–eng–48. The result of this inspection and the discrepancies disclosed, was also discussed.

In letter of May 3, 1951, noted above, the following information was brought out, and the action to be taken agreed upon:

	ACTION TO BE TAKEN
Category A	
1. Bathtubs furnished and installed, which did not conform to Federal specifications at the time of signing of contract.	Contractor will credit Government with differential in cost, including freight.
(a) Strainers are of pressed metal, not cast, as specified.	No action to date. Contractor will replace without increase in cost.
2. Kitchen sink strainers wrong type.	Said to be on hand. Contractor will replace with basket type, without increase in cost.
3. Sink traps in bathroom furnished without clean-out connection "puttied in place."	Contractor will replace trap with clean-out and with connection as specified, without increase in cost. Connection will be standard screw fitting.
Category B	
1. Black steel bushings used instead of copper, brass, or bronze, in water lines, mechanical room.	Contractor will replace at no additional cost.
2. Pipes not in accordance with paragraph M1.26 and M2.25 of the specifications (one-fourth inch per foot; one-half inch per foot).	Contractor claims pipes are at proper slope. Check in field—if deficient, install swing joints.
Category C	
1. Install pipe sleeve in steam riser to bathroom convector in accordance with paragraph M2–26A of the specifications.	Contractor not convinced this is specified. Consider further action to be taken.
2. Install escutcheon plates at walls on all piping in accordance with paragraph M1.06B of the specifications.	Not all placed. Contractor will install remainder, without increase in cost.
Category D	
1. A vent will be installed in the bathtub drain line. Contractor will submit shop drawing for approval prior to making the installation.	This vent will be omitted, but contractor will credit Government for cost.
2. Clean-outs will be installed at or near the base of the vertical kitchen sink and laundry tub drain lines, as required by paragraph M1.21B of the specifications.	Kitchen O. K., but laundry tube line to be corrected by the contractor at no additional cost to the Government.
3. Clean-outs will be installed at ends of horizontal waste lines in accordance with the contract drawings.	Not required, but contractor will credit Government with cost of omitted items.
4. Install floor drains as specified in paragraph M1.09 of specifications and in a sanitary manner, as shown on contract drawings.	Contractor will check and correct all floor drains extending above level of concrete floor, at no addition cost to the Government.
5. Replace 90° L on laundry tray trap in accordance with M1.26C of the specifications.	Contractor will replace all such fittings not in accordance with specifications, at no additional cost to the Government.
6. Install proper basement convector and piping in accordance with detail shown on contract drawing No. 25–01–06 (sheet 6 of 9, second revision).	Contractor will without additional cost to the Government correct to 1 inch in end apartments, three-fourths inch in all others. End apartments are not heating. Check with heating experts as to size of feed pipe.
7. Install thermostatic trap on VTR in accordance with detail shown on contract drawing 25–01–06 (sheet 6 of 9, second revision).	Contractor will without additional cost to the Government correct deficiency to comply with contract drawings.
8. Install cold-water distributing pipe in hot-water tank in accordance with paragraph M2.11A (1) of the specifications.	Deletion allowable, but contractor will credit Government with saving in cost.
9. Install 1-inch relief valve on hot-water storage tank in accordance with contract drawing No. 25–01–06, sheet 6.	Three-fourths-inch relief valve adequate for installation. Contractor will credit Government with savings in cost.

The following discrepancies were disclosed during the spot check of 25 percent of the units described previously:

Specification—division number	Action to be taken
1. 1.0 Clearing, excavation fill and grading: Entire area to be trimmed and filled to grade—75 percent units.	Contractor will correct without additional cost to the Government.
2. 2.0 Concrete, finish, honeycomb: 1. 2:11:E replace if slabs do not drain—25 percent units.	Contractor will correct without additional cost to the Government.
2. Bolts and nuts not finished on column foundations. Weld substituted, concrete damaged.	Contractor will repair without additional cost to the Government.
3. Finish unsatisfactory, remove fins, patching, wall cracks—75 percent units.	Contractor will correct at no additional cost to the Government.
3. 3.0 Structural and miscellaneous metal: Medicine cabinet not in accordance with specs (single strength mirror, no open shelf)—100 percent of units.	Not serious. Investigate whether contractor should credit Government for difference in cost single strength glass as opposed to double strength specified. If from DE supply, O. K.
4. 3.05: Basement window, no exterior paint. Spec. 9.04F requires 2 coats exterior paint on exterior ferrous metals.	Check and correct if necessary. Investigate storm sash. Necessary if single glass is used instead of thermoplane.
5. 4.0 Carpentry and mill work 4.02C3: Faulty bridging between first floor joists. Blocks for pipe hangers unsatisfactory, end nailed. Faulty solid bridging, not over bearings—40 percent units.	Contractor will correct at no additional cost to the Government.
6. 4.04H: Outside doors poorly fitted. Inside doors warped—30 percent units.	Doors in accordance with specs. Contractor will investigate and replace if badly warped, without additional cost to the Government.
7. 6.013: Deficiency of hardware units, windows and storm windows—20 percent units.	Contractor will check all units and correct at once, without additional cost to the Government.
8. 4.04: Kitchen cabinets not in accordance with drawings. Screws and wedges not provided. Doors not right and left. Broom closet not provided. No cutting board. Handles and name plates missing. 100 percent units.	Contractor to check, correct, and replace missing parts where necessary without additional cost to the Government.
9. 6.0 Glass 6.02A5: Glass block not installed as per plans and specs, calking omitted inside surface, also cleaning omitted. 75 percent units.	Contractor will correct when necessary, and clean when finished, at no additional cost to the Government.
10. 8.0 Floor and wall covering—8.02F laying linoleum: Bulges, improper fit. 20 percent units	Contractor will check and correct where necessary, at no additional cost to the Government.
11. 0.04A: Sliding edges of wood sash 2 coats linseed oil, 1 coat wax omitted 100 percent units.	Recheck, and if necessary, correct, at no additional cost to the Government.
12. 9.04H2: Pipe covering—2 coats silica soda and water, 1 coat lead and oil—omitted 100 percent units.	Contractor will complete in accordance with the specifications at no additional cost to the Government.
13. 10.0 Finish—hardware: Lock bathroom to hall not provided with emergency unlock MS Specs—Lock 2A9, 90 percent units.	Contractor will replace or correct to allow lock to function properly at no additional cost to the Government.
14. M 1.0 Plumbing: (1) Compression stops and supply tubing to toilets, lavatories and sinks have been installed one-fourth inch in lieu of three-eighths inch. 100 percent units.	Contractor will credit Government with savings in cost, due to this substitution.
(2) Volume controls on shower heads have been eliminated, 100 percent units.	Contractor will credit Government with savings in cost.
M 1.0603: (3) Soap dishes on laundry tray fixtures have been eliminated. Required by Federal Specifications WW-P-541a, p. 57, E24e. 100 percent units.	Contractor will credit Government with value of this omission.
M 1.10A: (4) Bronze clamping rings have been deleted on roof drains. 100 percent units.	Contractor will credit the Government for savings in cost due to this substitution.
M 1.27A4: (5) Banding of hot and cold water soil and drain lines lagging has been eliminated except in first 3 buildings. Almost 100 percent units.	Contractor will credit the Government with savings due to this omission.
(6) Toilet flush assemblies do not meet Federal specifications. Federal Specifications WW-P-541a, E37C, p. 91. 100 percent units.	Contractor will replace throughout the entire Contract at no additional cost to the Government.
(7) Shower head arms and bath spouts have not been secured to studs. Workmanship. 100 percent units.	Contractor will remove tile, secure fixtures to studs, and replace tile, at no additional cost to the Government.

Specification—division number	Action to be taken
M 1.27A4—Continued	
(8) Hot water faucet handle has been installed on the right hand side in every other apartment. Common usage. 100 percent units.	Contractor will change piping to cross and place hot water faucet on left, without additional cost to the Government.
(9) Cradles on hot water tank stands have been eliminated. 100 percent of E units.	Contractor will stabilize by means of fillet, to the satisfaction of the contracting officer, without additional cost to the Government.
(10) Plumbing piping has not been installed in accordance with contract drawings. 100 percent units.	Contractor will credit Government for all savings.
(11) Lavatory and sink traps are not connected to waste piping in accordance with Federal specifications. 100 percent units.	Contractor will correct, without additional cost to the Government. (See Category C, No. 3.)
(12) Laundry tray stands do not meet Federal Specifications WW-P-541a, p. 56, fig. 56. Bracing omitted. 100 percent.	Contractor will strenthen and brace in order to meet specifications without additional cost to the Government.
M 1.22A:	
(13) Sleeving is not in accordance with specifications. 100 percent units.	Contractor will correct and repair at no additional cost to the Government.
M 2.0:	
Heating deficiencies	
M 2.25B:	
(1) Swing joints have been eliminated on all runouts from main. No. ½ inch per foot pitch. 100 percent units.	Contractor will correct at no additional cost to the Government. (See Category B (2), Plumbing.)
M 2.28A 2 and 3:	
(2) In all instances where pipe covering terminates at unions, traps, valves, etc., the canvas has not been turned over the end of the insulations. 100 percent units.	Contractor will correct, at no additional cost to the Government.
M 2.20A:	
(3) Bucket traps have been eliminated on steam service lines entering buildings. 100 percent units.	These will be omitted, but contractor will credit Government for savings due to this omission.
(4) Post engineer reports at least 75 basement convectors broken because of rigid connection to unit; no means of taking up movement in supply pipe.	Charges incurred by post engineer will be assessed against the contractor. (See Category C-6.)
(5) Post engineer reports 75 air vents are being replaced due to non-functioning and subsequent flooding.	Contractor will replace all damaged valves, at no additional cost to the Government.
4.0 Carpentry and Mill work:	
(6) Subsequent to meeting, deficiency discovered which eliminates fire wall and allows circulation of air over dividing wall between units. (See Drawing No. 25-01-06, sheet 4, General structural notes, double joists under all partitions running parallel.)	Double joists not over wall and under partitions. Contractor will correct this condition by placing solid bridging over wall and providing a fire break between units to the approval of the contracting officer, and without additional cost to the Government.
9.04C:	
(7) Unsatisfactory condition of welchboard after exposure to weather. Cracks and warping.	Contractor to submit to the contracting officer, in writing, the explanation of the supplier of welchboard, West Coast Plywood Co., as to the cause of this condition, and recommendations for correction. The contractor will also submit a breakdown of costs for the substitution of this board to determine whether the Government is entitled to a credit.

It was agreed at conference held on October 12 that the contractor would start work on October 15 to correct all deficiencies noted herein, and to prosecute this work vigorously until all deficiencies were corrected. Also, that the contractor would expedite the procurement and installation of valves on all convector radiators as previously directed by letter from the resident engineer dated May 12, 1951, and letter from the contracting officer dated July 24, 1951. Under the terms of the contract there will be no final acceptance or relaxation of the damage clause until the terms of the contract, with regard to the plans and specifications, have been met.

Very truly yours,

L. E. SEEMAN,
Colonel, Corps of Engineers, Contracting Officer.

EXHIBIT B

Check inspection on eight-family quarters 33 eight-family houses under contract No. 61.

The deficiencies observed are for the most part minor and will be corrected in full before final inspection for complete turn-over of buildings is made.

Specification Division No.	
1.0 Clearing, excavation fill and grading	Grading O. K., top soil omitted, check whether credit is justified.
4.0 Carpentry and mill work	
4.03E2 Joint between hardwood and linoleum in kitchen and dining alcove and at top step of stairway to cellar.	Check all units carefully to be sure no lip exists to catch on high heels. General condition, excellent.
4.0 Kitchen cabinets are specified without breadboard.	Breadboard furnished to the post engineer for distribution to tenant.
9.04H2 Pipe covering 2 coats siliac paint, 1 coat lead oil.	Painting will be accomplished in accordance with the specifications at no additional cost to the Government.
M 1.0 (2) Bathtub does not meet Federal Specifications (see Contract DA-48).	Contractor will credit differential on cost, including freight, to the Government.

Subject: Deficiencies, Contract DA-95-507-eng-48—51 eight-family quarters, Fort Richardson.
To: Mr. Gilpin
From: NPAHC
Through: Mr. Knutson

Comment No. 1

NOVEMBER 3, 1951.

1. This office has reviewed the attached correspondence, and submits the following estimate for credit due the Government as shown in the listed deficiencies of exhibit A, dated October 29, 1951.

2. The estimated credit due the Government is summarized as follows:

Item Category A-1	$8,109
Item Category D-1	5,712
Item Category D-3	2,193
Item Category D-8	204
Item Category D-9	102
Item No. 3	1,683
Item No. 14 (1)	459
Item No. 14 (3)	663
Item M1.0603 (3)	177
Item M1.10A (4)	2,754
Item M1.27A4 (5)	918
Item M1.27A4 (10)	65,739
Item M2.20A	9,537
Item 9.04C	2,805
Total	101,055

3. The itemized breakdown of the estimate is attached.

RAPH BOYER, *Estimating Section.*

EXHIBIT A

Item: Category A-1, bathtubs

Enameled pressed steel bathtubs as installed, less in cost than specified enamel cast iron.

Reduction in cost for substitution, 1 building:	
Material, $69.52×1.285	$89
Freight, 18 hundredweight×3.02×1.285	70
Total for 1 building	159
Reduction in cost for substitution, 51 buildings	×51
Or, credit due to Government because of substitution	$8109

Item: Category D–1, bathtub vents

Omitted on mechanical drawings, contractor's shop drawings to have been submitted, but installation omitted.

Reduction in cost for omission, 1 building:	
Material, $35.43×1.285	$46
Labor, 29.90×1.50×1.285	58
Freight, 2.02 hundredweight×3.02×1.285	8
Total cost for 1 building	112
Reduction in cost for omission, 51 buildings	×51
Or, credit due to Government because of omission	$5712

Item: Category D–3, clean-outs

Omitted at ends of horizontal waste lines.

Reduction in cost for omission, 1 building:	
Material, $17.78×1.285	$23
Labor, 9.59×1.50×1.285	18
Freight, 0.63 hundredweight×3.02×1.285	2
Total for 1 building	43
Reduction in cost for omission, 51 buildings	×51
Or, credit due to Government because of omission	$2193

Item: Category D–8, cold water distributing pipe in hot water storage tanks

Cold water distributing pipe indicated in project specifications, but not shown on mechanical drawing. Would have been included in tank fabrication.

Reduction in cost for omission, 1 building:	
Material, $3 × 1.285	$4
Total for 1 building	4
Reduction in cost for omission, 51 buildings,	× 51
Or, credit due to Government because of omission	$204

Item: Category D–9, relief valves, hot water storage tanks

Three-quarter-inch relief valves substituted for specified 1 inch relief valves.

Reduction in cost for substitution, 1 building:	
Material, $1.47 × 1.285	$2
Freight, 0.003 hundredweight × 3.02 × 1.285	
Total for 1 building	2
Reduction in cost for substitution, 51 buildings	× 51
Or, credit due to Government for substitution	$102

Item No. 3

(1) Medicine cabinets as specified:		
Material, $104 × 1.17	$122	
Freight, 0.49 × 3.02 × 1.17	2	
	124	
	× 51	
		$6,324
(2) Medicine cabinets as installed:		
Material, $76 × 1.17	$89	
Freight, 0.49 × 3.02 × 1.17	2	
	91	
	× 51	
		4,641
Credit due Government		**1,683**

Item No. 4 (1)

(1) Compression shops, tubing as specified:

Material, $69 × 1.285	$89	
Freight, 0.047 × 3.02 × 1.285	0	
	89	
	× 51	
		4,539

(2) Compression shops, tubing as installed:

Material, $62 × 1.285	$80	
Freight, 0.03 × 3.02 × 1.285	0	
	80	
	× 51	
		4,080
Credit due Government		459

Item No. 14 (2)

(1) Volume controls as specified:

Material, $10 × 1.285	$13
	× 51
Credit due Government	663

Note these valves come with volume control attached to shower head, therefore, no additional labor involved.

Item M1.0603 (3)

Soap dishes on laundry trays, as specified.

Material, $1.20 × 1.285	$1.54
Labor, 0.80 × 1.50 × 1.285	1.54
Freight, 0.01 × 3.02 × 1.285	.39
	3.47
	× 51
Credit due Government	$177

Item M1.10A (4)

Substituting cast iron clamping ring for bronze specified.

Material $42×1.285	$54
	× 51
	$2,754

NOTE.—Material price is the difference between the cast iron ring installed and the ring specified.

Item M–1.27A2 (5)

Banding of logging on hot and cold water, soil and drain lines.

Material, $3.96×1.285	$5
Labor, $6.58×1.50×1.285	13
	18
	× 51
	$918

Item M–1.27A4 (10)

Plumbing not installed according to contract.

Material, $500×1.285	$643
Labor, $335×1.50×1.285	646
	1,289
	× 51
	$65,739

Item: Specification Division M2.20A—Bucket Traps

Omitted on steam service lines entering building.

Reduction in cost for omission, 1 building:	
Material, $82.94×1.285	$107
Labor, $39.84×1.50×1.285	77
Freight, $0.8 hundredweight for 3.02×1.285	3
Total for 1 building	187
Reduction in cost for omission, 51 buildings	× 51
or, credit due to Government because of omission	$9,537

SUMMARY OF COST

Item 9.04C

(1) Cost of striated plywood:	
Material, $653×1.17	$764
Freight, $61×1.17	71
	835
	× 51
Estimated cost of striated plywood	$42,585
(2) Cost of Welchboard:	
Material, $578×1.17	$676
Freight, $80×1.17	104
	780
	× 51
Estimated cost of Welchboard	$39,780
Credit due Government for using Welchboard	2,805

EXHIBIT D

MAY 3, 1951.

PATTI-MACDONALD CONSTRUCTION CO.,
Station No. 1, Anchorage, Alaska.

GENTLEMEN: Reference is made to a list of deficiencies occurring under contract DA–95–507–eng–48 and to recent conferences and discussions on this subject. Summarizing these discussions and agreements, the deficiencies under this contract were divided generally into four categories as follows:

A. Materials and fixtures not meeting specifications, i. e., item 34 of list of deficiencies submitted by resident engineer.

B. Workmanship of installation not in accordance with specification or to an acceptable standard, i. e., item 1.

C. Failure to perform certain work required by specifications and/or contract drawings, i. e., no insulation on roof drain piping as required by paragraph M1.27–A–1 of the specifications.

D. Methods of installation approved on shop drawings but not in accordance with specification, or contract drawings, i. e., item 32.

Action to be taken under each category follows:

Category A

1. You are directed to take the necessary action to correct the deficiencies included in category A. It was agreed that upon acceptable proof from the Crane Co., suppliers of the fixtures, that the bathtubs furnished were in accordance with the specifications, this item would be accepted as satisfactory. The bathtubs are considered as meeting the specifications; however, strainers must be cast instead of pressed metal as required by Federal Specifications WWP 541a.

2. Kitchen sink strainers are of wrong type and must be replaced by proper type.

3. Sink traps do not have clean-out plug shown on approved Crane brochure. Install proper trap in accordance with Federal Specifications WWP 541a, page 87, paragraph E35a(2).

Category B

1. It was agreed that the contractor would correct all defective workmanship included under category B. In addition to those discussed this will include, but is not limited to, the following items:

a. Replace black steel bushings in copper, brass, or bronze water lines in mechanical room.

b. All pipes will be installed with proper pitch in accordance with paragraph M1.26 and M2.25 of the specifications.

Category C

1. You are directed to perform all work necessary to correct those deficiencies included in category C. This will include but is not limited to the following items:

a. Install insulation on roof drain piping in accordance with paragraph M1.27–A–1 of the specifications.

b. Install china bolt caps in accordance with paragraph M1.06B of the specifications.

c. Install pipe sleeve in steam riser to bathroom convector in accordance with paragraph M2.26A of the specifications.

d. Install lavatory waste in accordance with Federal Specifications WWP 541a, page 87, paragraph E35a(1).

e. Install eccentric reducers in steam distribution lines within building in accordance with paragraph M2.25a of the specifications.

f. Install hot-water circulating pump "free mounted" in accordance with manufacturer's recommendation.

g. Install escutcheon plate on walls on all piping in accordance with paragraph M1.06B of the specifications.

h. Install framing under roof drain in two directions in accordance with roof drain detail, sheet 5 of contract drawings.

Category D

1. You are directed to take the action listed below under Category D. This action is considered to be required by the specifications and/or contract drawings and notwithstanding the fact that the Government has approved certain shop drawings you are considered to be held responsible under the provision of paragraph SC–16 of the specifications.

a. No vent will be required on the lavatory drain pipe.

b. A vent will be installed in the bathtub drain line. Contractor will submit a shop drawing for approval prior to making the installation.

c. Clean-outs will be installed at or near the base of the vertical kitchen sink and laundry tub drain lines as required by paragraph M1.21B.

d. Stop or globe valves will be installed on supply lines for each laundry tub in accordance with paragraph M1.06 of the specifications.

e. Clean-outs will be installed at ends of horizontal waste lines in accordance with contract drawings.

f. Install floor drains as specified in paragraph M1.00 of specifications and in a sanitary manner as shown on contract drawings.

g. Install roof drain that meets specifications, i. e., present roof vent is increased one pipe size about 4 inches below roof instead of 1 foot below roof as required in paragraph M1.26A of the specifications.

h. Replace 90° ell on laundry tray trap with fittings in accordance with paragraph M1.26C of the specifications.

i. Install proper basement convector and piping of basement convector in accordance with detail shown on contract drawing No. 25–01–06, sheet 6 of 9 (second revision).

j. Install thermostatic trap on VTR in accordance with detail shown on contract drawing No. 25–01–06, sheet 6 (second revision).

k. Install cold-water distributing pipe in hot-water tank in accordance with paragraph M2.11A1 of the specifications.

l. Install valves on hot-water recirculating pump in accordance with contract drawing No. 25–01–06, sheet 6 of 9.

m. Install 1-inch relief valve on hot-water storage tank in accordance with contract drawing No. 25–01–06, sheet 6.

General

All piping shall be tested in accordance with paragraphs M1.28 and M2.31 of the specifications. In those instances where piping has been enclosed without test, test will be made when wall covering is removed to accomplish other work.

It is requested that you acknowledge receipt of this letter.

Very truly yours,

G. M. DORLAND,
Lieutenant Colonel, Corps of Engineers,
Acting Resident Engineer.

EXHIBIT E

DIGEST OF ORAL REPORT BY LT. COL. G. M. DORLAND, ACTING RESIDENT ENGINEER, FORT RICHARDSON, TO COL. L. E. SEEMAN, DISTRICT ENGINEER, ON THE SUBJECT OF ALLEGED DEFICIENCIES, CONTRACT DA–95–507–ENG–48

In accordance with your instructions to investigate the alleged plumbing deficiencies in contract 48, I have taken the following action:

1. Assumed the responsibility of acting resident engineer, Fort Richardson residency.

2. Met with appropriate contractor personnel, resident engineer, zone engineer, and such inspectors as were available and discussed the alleged deficiencies.

3. I have written a letter to the contractor indicating the action to be taken with regard to these deficiencies (letter from acting resident engineer to Patti-MacDonald, dated May 3, 1951). This letter has been coordinated with the chief, construction division; chief, engineering division; and chief, legal branch of the district office.

4. I expect the contractor to reply to my letter indicating compliance with certain of the instructions, but taking issue with certain others. When this reply is received, action will be taken by the resident engineer to follow up on these items.

G. M. DORLAND,
Lieutenant Colonel, CE,
Assistant District Engineer.

EXHIBIT F

Subject: Inspection of Plumbing and Heating Installed Under Contract DA–48
To: Projects South
From: NPAHC
Through: Mr. Knutson

September 13, 1951.
Comment No. 1

1. An inspection by the General Accounting Office was conducted on the plumbing and heating installed under contract DA–48, September 11, 1951. This officer was among the group of resident engineer's and district engineer's representatives who witnessed this inspection, and the following are the deficiencies that exist on the above contract:

A. CREDITS DUE GOVERNMENT

(1) Swing joints on run-outs from heating mains have been eliminated throughout most of the project.

(2) Painting of covered heating piping on seven buildings was eliminated.
(3) Compression stops and supply piping to toilets, lavatories, and kitchen sinks were installed one-fourth inch in lieu of three-eighths inch.
(4) Cold-water distributing plate in hot-water storage tank has been eliminated.
(5) One-half-inch gate valves on hot-water recirculating lines have not been installed in some buildings.
(6) Bathtubs do not meet the specifications.
(7) Bathtub overflow plates are pressed steel in lieu of cast brass.
(8) Plumbing piping is not installed in accordance with contract drawings.
(9) A considerable amount of lagging has been eliminated.
(10) Cradles on hot-water tank stands have been eliminated.
(11) Volume controls on shower heads have been eliminated.
(12) Soap dishes on laundry tray fixtures have been eliminated.
(13) Bronze clamping rings have been deleted on roof drains.

B. CORRECTIONS TO BE MADE

(1) Lavatory and sink traps are not connected to waste piping in a proper manner.
(2) Laundry-try stands should be replaced or strengthened.
(3) Clean-outs should be installed on laundry tray waste piping.
(4) Toilet tank flush assembly should be changed.
(5) Clean-outs should be installed where underground soil piping terminates in apartments 1 and 8 and where it exits from buildings.
(6) Shower head arms have not been secured. Walls should be opened and this piping fastened in some workmanlike manner.
(7) Hot-water faucet handle for laundry tray has been installed on the right-hand side in every other apartment.
(8) Hot-water temperature and relief valves are one-half inch. These should 1 inch.
(9) Convectors have been installed at 8 inches above finished floor. Plans show 5 inches.
(10) Basement convectors have been installed with three-fourths-inch pipe and reduced to one-half inch at convector. The correct size is 1 inch in apartments 1 and 8 and three-fourths inch in the other apartments. These sizes should be carried full size into convector.
(11) Pipe sleeving should be corrected throughout project.
(12) Convector valves have not been installed as per paragraph M 2.16 C.
(13) In all instances where pipe covering terminates at unions, traps, etc., the insulation has not been covered with canvas.

2. The above deficiencies are the writer's observation on what credits are due the Government and what corrections should be made.

J. H. COLEMAN,
Captain, CE,
Technical Control Section.

EXHIBIT G

Subject: Current Status of Plumbing and Heating Installation, Contract DA-95-507-eng-48
To: Resident engineer.
From: G. D. King.

SEPTEMBER 14, 1951
Comment No. 1

1. Attached is a current report of plumbing and heating installation on subject contract itemized to conform with detailed report entitled, "Mechanical Inspection Report, Contract DA-95-507-eng-48," made April 19 and 20, 1951, by Capt. John H. Coleman, Mr. D. E. Gordan, and Mr. John J. Loughlin.

2. This report in effect also covers corrections, deletions, or deficiencies listed in correspondence and directives issued subsequent to the foregoing report.

3. Field inspection reports and disapproval forms substantiate the fact that contractor and subcontractor's supervision has been repeatedly requested to correct all deficiencies covered by correspondence, directive, or agreement during the period of conversation subsequent to May 3, 1951.

G. D. KING,
Zone Engineer.

REPORT CURRENT STATUS OF PLUMBING AND HEATING INSTALLATION, CONTRACT DA-95-507-eng-48, SEPTEMBER 14, 1951

1. Corrected.
2. District engineering department ruled concealment of heating run-outs was not intended.
3. Contractor has ordered the valves and will install upon arrival.
4. Approved type basket strainers have been purchased and installed in some of the recently completed buildings. Balance will be installed upon arrangement with occupants.
5. (*a*) Approximately 50 percent of sink traps are in accordance with specifications (17 gage). Balance are lighter (20 gage), purchased subsequent to and in compliance with NPA brass regulations restricting gage and use of brass in plumbing fittings.
(*b*) Prohibited steel coupling has been replaced with copper.
(*c*) Connection to waste not in accordance with specifications.
6. Supply tubing: Estimating department preparing cost differential between ¾-inch I. D. (⅞-inch O. D.) copper tubing and ⅞-inch I. P. S. tubing for credit to Government.
7. Air vent on basement convector not required.
8. Not corrected.
9. Not necessary. Hanging provided on steam piping in an acceptable installation.
10. Partially corrected by contractor. Survey will be required to ascertain detailed account of those not corrected.
11. Same as 10 above.
12. Corrected as outlined in 9 and 10 above.
13. Corrected. See 10 above.
14. Corrected as outlined in 9 and 10 above.
15. Stops on basement laundry tray hot- and cold-water supply lines have been provided except that stops on one side of basement wall are above, instead of below, supply lines to laundry tray on opposite side of wall. Hot and cold water are at opposite hand on each side of wall.
16. Laundry tray stand not braced as required in Federal specifications nor in the manner promised by contractor.
17. Not corrected by contractor after repeated requests.
18. Sleeves in this instance not required.
19. Steam and return piping painted on all but first seven buildings which had been covered on first inspection.
20. Larger opening permitted during plumber strike. Openings have been packed to size with mortar but without sleeves.
21. Corrected. Horizontal sink line has been properly supported.
22. Size of sink waste line is considered adequate and size apparently was intent in addendum No. 1. Criticism expressed by inspector is his personal opinion; however, item is subject of discussion for payment credit.
23. This item is an acceptable installation. Comment is personal opinion of inspector.
24. Same as 23 above.
25. Same as item 20 above.
26. Not corrected.
27. Drain approved has internal expansion joint.
28. Not corrected.
29. Corrected.
30. Not corrected. Subject to credit from contractor.
31. Not corrected. Same as 30 above.
32. Not corrected. Same as 30 above.
33. Not corrected.
34. Pressed steel enameled tub permitted by Federal specifications except that tub furnished is smaller than minimum dimensions allowed.
35. Not corrected.
36. Not corrected.
37. Corrected.
38. See item 6 above.
39. Not corrected.

Building 5354, apartment 2:

1. Not required.
2. Corrected.
3. Corrected.
4. Corrected.
5. Corrected.
6. Corrected.
7. Not necessary.
8. Not corrected.
9. Corrected.
10. Corrected.
11. Not required.
12. See item 19, apartment 1.
13. Not corrected.
14. Not corrected.
15. Corrected.
16. See item 22, apartment 1.
17. Specifications not clear on this item. More costly fitting supplied on installation.
18. See item 21, apartment 1.
19. See item 17, apartment 1.
20. See item 26, apartment 1.
21. See item 18, apartment 1.
22. See item 8, apartment 1.
23. See item 5, apartment 1.
24. See item 4, apartment 1.
25. See item 2, apartment 1.
26. See item 3, apartment 1.
27. See item 3, apartment 1.
28. Not corrected.
29. See item 16, apartment 1.
30. See item 17, apartment 1.
31. See item 6, apartment 1.
32. See item 2, apartment 1.
33. See item 23, apartment 1.
34. See item 24, apartment 1.
35. See item 30–35, apartment 1.
36. See item 37, apartment 1.
37. See item 38–39, apartment 1.
38. Clean-out provided.
39. Corrected.
40. Corrected.
41. Corrected.

Building 5354, apartments 3, 4, 5, 6, 7, and 8; same as, apartments 1 and 2.
Building 5354, mechanical room:

1. Corrected.
2. Corrected.
3. Corrected.
4. Corrected.
5. Corrected.
6. Corrected.
7. Corrected.
8. Corrected.
9. Corrected.
10. See item 19, apartment 1.
11. Flash tanks are in accordance with contract.
12. Not corrected. Contractor offered credit which is under consideration.
13. Cyclotrol mounted in accordance with manufacturer's recommendations.
14. Not corrected.
15. Not corrected.
16. Partially corrected. Survey will be required to ascertain detailed count of those not corrected.
17. Corrected.
18. Corrected.
19. Corrected.
20. Corrected.

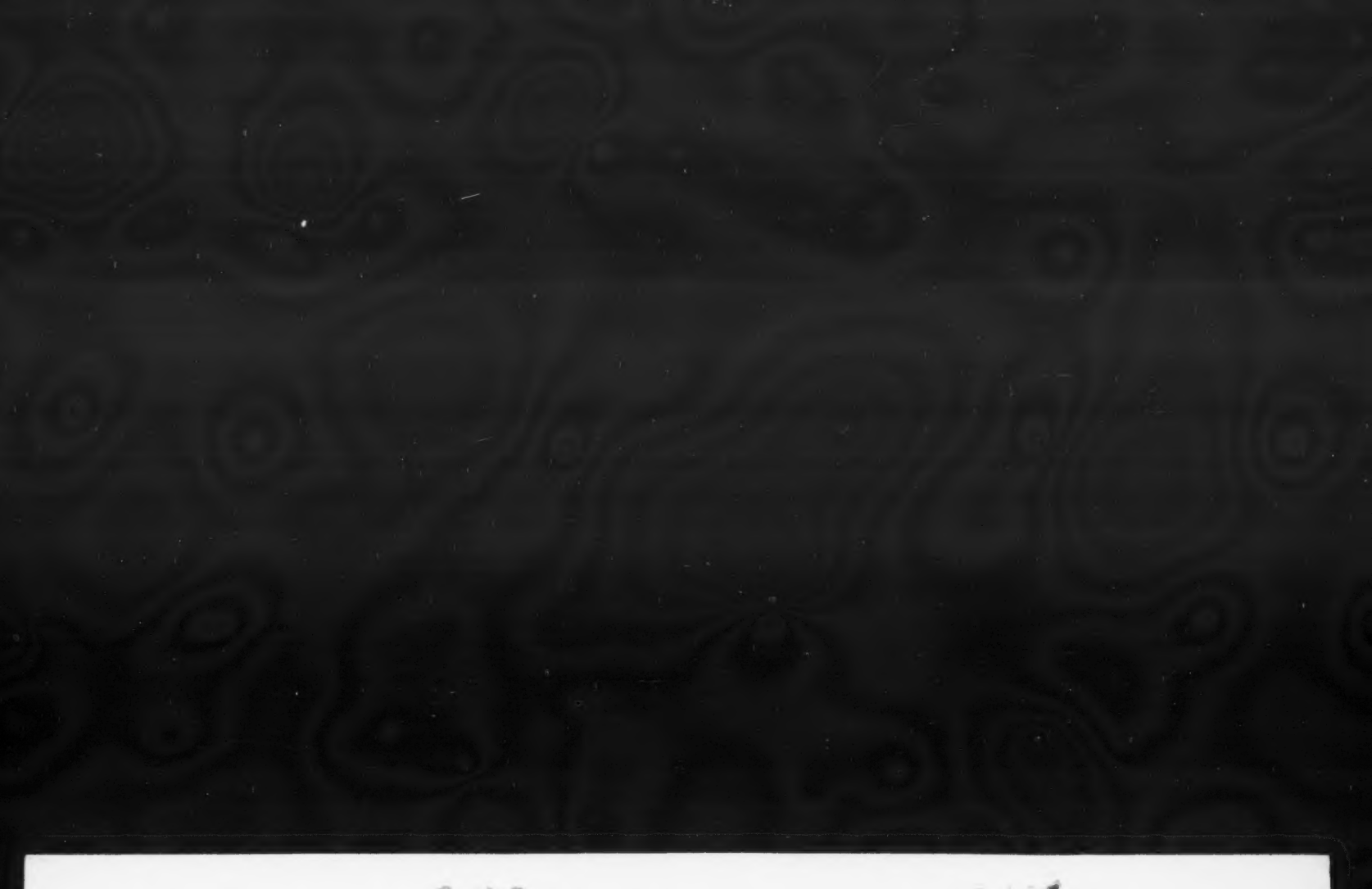
21. Not corrected.
22. Corrected.
23. Not corrected.
24. Pump mounted in accordance with manufacturer's recommendations.
25. Corrected.
26. Galvanized water supply line coming through floor in accordance with contract.
27. Installation made in accordance with contract.
28. See item 9, apartment 1.
29. Not corrected.
30. Not corrected. Same as item 17, apartment 1.
31. Not corrected.
32. Not corrected.
33. See item 22, apartment 1.
34. See item 22, apartment 1.
35. Corrected.
36. Not corrected.
37. Copper wire hangers used. Item is subject of discussion for payment credit.
38. Same as 37 above.
39. See item 17, apartment 2.
40. See item 19, apartment 1.
41. Corrected.
42. Not corrected. Subject of discussion for payment credit.
43. Not corrected.

Building 5493, apartment 1 (see notes preceding itemized account of inspection report of April 19 and 20, 1951:

1. Contractor furnished 3-inch stacks throughout in lieu of one 4-inch stack and three 2½-inch stacks specified.
2. Not corrected.
3. Not corrected.
4. Corrected.
5. See item 22, apartment 1.
6. See item 17, apartment 2.
7. Corrected.
8. Same as 6, above.
9. Partially corrected. Survey will be required to ascertain detailed count of those not corrected.
10. See item 26, building 5354, mechanical room.
11. See item 27, building 5354, mechanical room.
12. Corrected.
13. Corrected.
14. Corrected.
15. Corrected
16. Corrected.
17. Corrected.
18. Corrected.
19. Not required.
20. Corrected.
21. Corrected.
22. Corrected.
23. Corrected.
24. Corrected.
25. Corrected.
26. Corrected.
27. Not required to be concealed.
28. Corrected. Friction clamps installed.
29. Not required. Inspector's comment is his personal opinion.
30. See item 17, apartment 2.
31. Corrected.
32. Corrected.
33. Corrected.
34. Corrected.
35. Not intended to be concealed.
36. Corrected.
37. Corrected.

38. Corrected.
39. Corrected.
40. Corrected.
41. See item 27, apartment 1.
42. See item 28, apartment 1.
43. Corrected.
44. Not corrected. Proper securing method neglected.
45. Corrected.
46. Not corrected.
47. Not corrected.
48. Not corrected.
49. Not corrected.
50. Not corrected.
51. Corrected.

In addition:

Laundry tray supply fixture does not have soap dish.
Saddles on hot-water tank not installed as per specifications.
Volume control on shower head missing.
Hot water temperature, and relief valves one-half inch should be one inch.
Convector 8 inches above—5 inches required.

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